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ADDRESS.

PRESIDENT'S ADDRESS.

Delivered at the Second Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 25-27, 1895.

BY C. K. COLE, M.D.

CHIEF SURGEON MONTANA CENTRAL RAILWAY.

HELENA, MONT.

Fellows of the American Academy of Railway Surgeons:—I congratulate you, and through you the railway hospital service of the country, upon the evidences of success and prosperity attained by your association in the short space of one year. A year ago the need of such an association as this Academy was by many doubted, by a few urgently denied, and by those few the proposition to effect an organization was violently opposed. For the most part it is fair to assume that the opposition, whether merely passive or as in certain instances quite active, reflected the honest sentiments of those who were equally desirous in the interests of railway surgery, as were those of us who felt the time ripe for the consummation of what had long been considered desirable, if not an actual necessity. No stronger justification of the wisdom of the undertaking and no better vindication of the motives which prompted the promoters, could be desired, than the events which have transpired touching the interests of the Academy during the past eighteen months, and I may add no greater inspiration is needed to a continuation of honest, loyal work in the future along the lines governing this association than a glance at the splendid scientific program for this meeting, and the additional fact that 85 per cent. of the Fellows of the Academy are present to participate in our proceedings.

Gentlemen, while these are matters for congratulation, and calculated to stir us with enthusiasm in behalf of our organization, let us not take a narrow conception of our work, which, as Fellows of the Academy, is necessarily national in its character. Let us rather seek by individual effort to promote a proper spirit of competition, remembering that as individuals and also as a society we will be carefully and accurately judged by public opinion, as well as by our own consciences, than which no higher or more impartial court ever found a verdict.

In this era of verbosity in medical literature it is often extemely difficult even with those of large experience, as well as extensive personal acquaintance, to select the really good from that which is mediocre in what is written. An important function of this Academy is to seek to establish a standard in the literature of railway surgery in America. I undertake to say that if each gentleman in affiliation with the Academy would give the same painstaking attention to what he writes for publication as he does to his ordinary professional duties, never lending himself to the popular idea of writing frequent lengthy and often empty articles for print, the literature of the Academy would in a few years be recognized as trustworthy and authoritative in matters pertaining to railway surgery, and its Fellows would be credited with having established an institution worthy of commemoration. The erstwhile mooted question as to establishing railway surgery as a specialty requiring special aptitude, special training and special facilities for work, is rapidly being settled, and it is safe to predict that in the near future, railway surgery as a specialty will be firmly established in the minds of not only the medical profession generally, but of also those distinguished laymen who have to do with the building and management of our great railways. Specialism in railway surgery does not consist in the use of certain apparatus, instruments, dressings, etc., nor does it consist in the possession of any peculiar technical knowledge not necessary to the general surgeon, for we are all governed by well-established surgical laws, and the application of certain cardinal principles is the same, whether in railway, military or other emergency surgery. It can not, however, be denied that in matters of organization and equipment, including transportation of patients, and many other details peculiar to railway surgery, special qualifications are essential to the best success. The general or chief surgeon of a road must have certain mental characteristics, not the least important of which is executive ability of a high order, together with a judicial instinct which will enable him under all circumstances to be fair and impartial to all concerned. He must, moreover, command the respect and confidence of his *confrères* generally and especially of his local surgeons, many of whom will be found to be his superior in point of operative ability, and each of whom should be a reputable practitioner in the best sense of the term.

I trust I may be forgiven the apparent, if not the real egotism of assuming to inflict so much parental advice, and beg in extenuation to say that the impulse is born of a deep feeling of interest in the present and future welfare of this association. We are making history, and it depends upon ourselves whether the future shall reveal the wisdom or unwisdom of our actions. This Academy is no longer an experiment with an uncertain future but an assured fact, and if we carefully observe the tenets of our organization there can be no doubt as to the ultimate result of our labors.

Generally speaking, the medical press throughout the country have been kind and courteous to us. The same may be said of the management of our various railways, which have almost without exception commended the general scheme of our organization, and especially the distinctive features of a strictly limited membership, with rigid scrutiny as to the qualification and standing of every applicant for fellowship.

I desire to express thanks to my associates in office especially, and to each of you for the very efficient

service rendered during the past year. For myself, the honor of having served as your first President is sufficient recompense for whatever effort the filling the position has cost.

ORIGINAL ARTICLES.

WHAT SHOULD EXCLUDE APPLICANTS FROM RAILWAY SERVICE?

Read at the Second Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 25-27, 1895.

BY JOHN E. OWENS, M.D.
Chief Surgeon Chicago and Northwestern and Illinois Central Railways.
CHICAGO, ILL.

It is a matter of practical interest to determine what should and what should not exclude applicants from railway service.

The formulation of any set of rules intended to govern examinations presupposes the adoption of a working basis, and the classification of the applicants for service.

So far as disabling diseases are concerned, it will not be necessary to mention those which are so disabling as to discourage the sufferer from following any pursuit. Others, again, are more or less insidious in their progress and for a time do not furnish symptoms which make the patient aware of their existence. Certain conditions interfere with the healing of wounds, impede recovery, entail an undue loss of time, and become aggravated by the injuries which are received in the line of duty. It would be useless to enumerate all the diseases which would disable the applicant. From a medical standpoint the following will perhaps be sufficient to turn the attention of the medical examiners in the right direction: Diabetes, cancer in all its forms and in all localities, chronic diarrhea, the presence of gallstones, chronic inflammations, hemoptysis, tuberculosis, asthma, organic cardiac disease, evidences of organic disease of the brain and its meninges and of the spinal cord.

From a surgical standpoint the following should exclude the applicant from service: Necrosis, ulcerations in any region, scrofula, bubo, malignant tumors, phlebitis, varicose veins, aneurysm, acute and chronic periostitis, synovitis, arthritis, floating cartilages, old depressed fractures of the skull, or any fracture followed by head symptoms, suppurative ear diseases, antero-posterior spinal curvature, severe injuries of the back, recurring appendicitis, abdominal hernias, acute and chronic cystitis, acute gonorrhea, epididymitis, enlarged testicle, certain visual defects and deafness.

INSTRUCTIONS GOVERNING SURGEONS IN CONDUCTING EXAMINATIONS OF APPLICANTS FOR EMPLOYMENT ON RAILROADS.

When making application for service, engineers, firemen, agents, operators, conductors, brakemen, engine dispatchers, train baggagemen, station baggagemen, crossing flagmen, switchmen, switch tenders and signalmen must be examined for color perception, hearing, and for visual and other physical defects.

Examining surgeons are requested to select a time and place at which they will conduct examinations, and to notify the proper officer.

Examinations are to be conducted in a well-lighted room at least twenty-two feet in length. In testing visual acuteness, only one applicant should be present in the room at a time. In testing color perception and hearing, any number of applicants may be present, but must maintain silence.

Examining surgeons are provided with the following articles to be used in making examinations:

1. Two cards of test type (Snellen's). (One for illiterates.)

2. A set of wools for testing color perception.

Applicants will bring with them application forms *in duplicate* on which will be found a blank certificate, to be filled out and signed by the examining surgeon.

EXAMINATIONS IN VISUAL ACUTENESS.

The card of test types should be fastened in a good light to a wall, the bottom of a card being about five feet from the floor.

A distance of twenty feet should then be measured off on the floor at a right angle to the plane of the card. Applicants are then to be admitted singly and instructed to read the card from above downward without assistance. In cases of defective vision, after testing vision for both eyes, each eye should be tested separately. The last five letters read correctly are to be recorded in the report.

Examiners are reminded that the normal-eyed should read at twenty feet the line marked 6 m.

EXAMINATION IN COLOR PERCEPTION.

Examiners are furnished with a set of colored wools, lettered A, B, and C, and numbered from 1 to 40. These wools are divided into three groups, distinguished as follows:

Group A, containing the light green skein A, the green shades numbered 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20, and the gray confusion colors numbered 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19.

Group B, containing the pink or purple skein B, the pink or purple shades numbered 22, 24, 26, 28 and 30, and the blue confusion colors numbered 21, 23, 25, 27 and 29.

Group C, containing the red skein C, the red shades numbered 32, 34, 36, 38 and 40, and the brown confusion colors numbered 31, 33, 35, 37 and 39.

MANNER OF USING THE WOOLS.

Mix the forty skeins thoroughly and throw them on a table in a good light; select skein A, and, placing it about twelve inches distant from the pile of wools, instruct the applicant to pick out the different shades of the same color.

The examiner, having satisfied himself of the ability or inability of the applicant to select the proper skeins, should record the numbers of the skeins selected and return them to the pile. The examiner should then place the skeins B and C successively near the pile of wools, to be treated in the same manner.

In testing for defects in color perception, examining surgeons may be guided by the following brief suggestions:

1. Any number of applicants may watch the test in operation, provided they maintain silence. In case an applicant fails to comprehend the test, he may be directed to step aside and watch another applicant select the skeins, or in the absence of another applicant the surgeon may himself make the selection. This method is valuable in case of color blindness, as the applicant is convinced against his will that the test is a fair one.

2. Do not under any circumstances call the color of a skein. All tests in which the applicant is requested

to name colors or shades are incorrect. The object of the test is to discover whether the applicant can properly classify shades of primary colors, and it is important after he thoroughly understands what is expected of him not to render him any assistance.

3. It is well, if necessary, to explain the difference between colors and shades, for example: Blue, green, red, are colors. Light blue, dark blue, pea green, Venetian red, are shades of these colors.

The examiner should watch the applicant closely and note any hesitancy in selecting the skeins, especially when he appears undecided whether or not to select a confusion color. Should he evince a strong tendency to select any confusion color, even if he does not actually select it, the number of the color should be recorded. Those who are defective in color sense, either select the confusion colors or want to do so.

4. Recollect, however, that blue is not a confusion color for green but only for pink (purple). It must be borne in mind that many men, not particularly ignorant in other matters, find it difficult to distinguish between light shades of blue and green, or between red and orange. This defect is one merely of education. It is the result of color ignorance, but not of color blindness, and should not reject a candidate. In case such ignorance is manifested, it may be well to call the applicant's attention to the fact that he is not well posted in colors.

5. In case of color blindness, the applicant usually adopts one of two courses. He may boldly and rapidly select a number of skeins at random, throwing them down with a great show of confidence, or he will laboriously study over the skeins, carefully selecting a few of the correct colors, and a few—often not more than one—of the confusion colors, always hesitating and usually selecting shades of nearly the same intensity in color and confusion of colors, for example: light green, light gray, light purple and light blue.

The infirmity of applicants adopting the first course is usually easy to detect, but it is often difficult to distinguish between a man who is hesitating and vacillating on account of lack of purpose or color ignorance, and one who does so on account of actual deficiency in color perception. In these latter cases it is well to instruct the applicant not to handle the wool until he has determined what skein he wishes to select. The applicant may also be permitted to watch another while making the test.

6. In case more than one applicant is present during the examination the wools should be frequently mixed, and other applicants should stand far enough from the table to be unable to read the numbers on the skeins, or the skeins may be arranged with the numbers turned down.

Inasmuch as the duties for the different railway employes are widely different, the requirements for efficient service would likewise vary. It would therefore be judicious to formulate the following classification:

In the first class, or those with normal hearing, color sense and visual power, are included the following: Engineers, firemen, engine dispatchers, brakemen, signalmen, conductors and train baggagemen.

In the second class, in which normal color sense and normal hearing are demanded, and also perfect visual power in one eye, while the other might attain to only 20-40 of the standard, or 20-30 visual power in both eyes, or both of which may be made so by the use of glasses, are included switchmen, switch tenders, agents, operators, station baggagemen and crossing flagmen, or gatemen.

PHYSICAL DEFECTS.

1. Applicants with trachoma or other inflammatory conditions of the eyes, or with chronic discharges from the ear, are disqualified.

2. Hernia, varicose veins of both legs, or very marked varicosity of veins in one leg, phlebitis, skin diseases—especially eczema, or even a strong tendency to it, loss of entire thumb or loss of two fingers of one hand, disqualify the first class, and station baggagemen, switchmen and switch tenders in the second class, while crossing flagmen, agents and operators may be accepted with hernia and also with loss of thumb or loss of two or more fingers of one hand.

3. Unmistakable evidence of chronic alcoholism disqualifies both classes.

4. Acute gonorrhea and the primary and secondary manifestations of syphilis, traumatic and pathologic bubo, disqualify both classes as long as the symptoms are apparent.

5. Orchitis, epididymitis, malignant tumors, recurring appendicitis, old depressed fractures of the skull, or any fracture followed by head symptoms; spinal injuries, epilepsy, antero-posterior curvature, severe injuries of the back, tuberculosis, marked scrofulous cachexia, aneurysm, necrosis, acute and chronic periostitis, acute and chronic cystitis, disqualify both classes. Agents, operators and crossing flagmen may be accepted with antero-posterior curvature without symptoms.

6. While synovitis, arthritis, floating cartilages and impaired mobility of joints disqualify the first class, and switchmen, switch tenders and station baggagemen in the second class, the latter need not exclude agents and operators, provided inflammation has long since subsided and the affected joints be free from pain.

7. From a medical standpoint, diabetes, chronic rheumatism and gout, chronic diarrhea, chronic hepatic disorders attended with jaundice, are disabling in their nature; hepatic, cardiac or renal dropsies, asthma, hemoptysis, valvular disease of the heart, angina pectoris, evidences of organic disease of brain or spinal cord, insolation, inveterate neuralgia of the larger nerves, disqualify both classes, while crossing flagmen may be accepted with a moderate amount of chronic rheumatism.

8. Under the head of disqualifying defects, surgeons will be careful to note any physical defects that would impair the usefulness of the applicant, that would be more or less aggravated by the service, or would contribute to the prolongation of disability in case of injury.

9. In order to prevent fraud in subsequent claims for personal injury, a careful record must be made in the proper place of physical defects which do not impair the usefulness of the applicant, that would not be aggravated by the service, or would not contribute to the prolongation of disability in case of injury.

10. In case the applicant does not show evidence of having been vaccinated since attaining to adult years, he should be vaccinated.

After making the test of vision, color perception, hearing and examination for physical defects, the examination surgeon will fill out and sign in duplicate the blank certificate found on the application blanks.

One of these is sent to the Division Superintendent or Master Machanic, and the other to the Chief Surgeon. The fee for making such examination will be paid by the company unless the applicant is accepted as an employé, in which case the amount of the fee is deducted from his wages. The certificate referred to is as follows:

SURGEON'S CERTIFICATE.

(Here follows a list of stations where examinations may be made.)

The following is the report of the result of my examination of Mr. . . . . .

1. When placed at a distance of twenty feet from the test types, the last five letters read correctly by the applicant are: Right eye, ... ; left eye, ... ; both eyes. . . . . .

2. A. The applicant selects skeins numbered as follows, as being the same color as test skein A: . . . . . B. The following as being of the same color as test skein B: . . . . . C. The following as being of the same color as test skein C: . . . . .

3. The applicant hears the tick of a watch with the right ear at . . . . . inches; with the left ear at . . . . . inches. For ordinary conversation at a distance of twenty feet, the hearing is . . . . . impaired.

I hereby certify that, having examined the visual power, color perception and sense of hearing of the applicant, I find him { qualified / disqualified } to fill the position of . . . . .

I also certify that there is evidence of his having been successfully vaccinated, that he is not suffering from any disease or disability, nor does he manifest any evidence of an abuse of intoxicating liquors.

Disqualifying defects . . . . . ; defects that do not disqualify . . . . . (Signed.) . . . . . , Surgeon.

Dated at 189

In presenting this paper, my desire is to formulate a tentative working basis for the purpose named. In all probability its practical working will suggest useful changes, and I am glad to avail myself of this opportunity for conference with the able Fellows here present, and hope that they will make important suggestions.

DISCUSSION.

DR. WEBB J. KELLY—I was very much interested in the paper of Dr. Owens, probably on account of the fact that in Ohio the railways have to a certain extent evaded the law. The law compels them to have the test for color blindness made, and it has been the custom of some roads—I will not say all—to select some one of the trainmasters to make the examination. The doctor in his paper calls attention to one point that impressed me very much, and I think the management of railways should have their attention called to it, namely, not designating what color they are to select as a color, giving it the name. As the doctor says, the test color is placed on the table and then the parties to be examined are asked to select the colors that match it. I have known instances that have come up on one of the roads I represent in which an employe would be examined for color blindness, and he would be asked to pick out all the greens in the bunch, and in that way the examiner would get the man confused. Were he to take the original green and ask the man to match it, I have no doubt the man would have done it correctly. I think this an important point in the doctor's paper to which we should call the attention of the management of our roads where they do not have a regularly employed surgeon to make these examinations.

DR. F. K. AINSWORTH—There is very much to commend in the paper of Dr. Owens and very little to criticise. I would ask the doctor what he does in the case of crippled employes? For instance, a man is employed in some branch of the railway service who has not had an examination for color perception, etc., who has lost a leg or some other member, and the company is anxious to do something for him—what can be done in such case? Under the rules of Dr. Owens that man could not become a flagman. It is becoming a question what to do with the crippled employes of our railroads. We have filled the positions of flagmen with these men, or in some cases with old engineers who are unable to do anything else.

In regard to the test for color perception, the doctor's rules are the same practically as ours, and I will only speak of one point that seems of great value. I have many times had men fail in the color test when made by the worsteds. Of course, in many instances I believe it was due largely to ignorance of colors, while in others it was attributable in greater or less degree to color blindness. These men, if given low surface flags, can pick them out every time without making any errors. They can pick them out in a dark room. If a man recognizes smoky lights without error, I should think it would be safe enough to put him on duty even if he had failed in distinguishing the wools.

DR. D. S. FAIRCHILD—Beginning with this month I have examined two hundred men under the regulations which have been adopted by Dr. Owens, and I have been astonished at the number of men who could not come up to the standard. Out of fifty-one men examined, twenty-four of them had either defective vision, defective hearing, or had large abdominal rings. Now, I have been making a note of all those cases in which there were large addominal rings. While these men are not disqualified, as far as the railway service is concerned, it is quite possible that some time in the future difficulty will develop. It not infrequently happens that an injured man, either a switchman or brakeman, comes into our office and says he was hurt in consequence of trying to climb on a moving train. The round of the ladder gave way, he fell, and hernia followed. Now, it is quite possible that such a man had weak abdominal walls previous to this time, that the hernial rings were large, and that in consequence hernia was developed and the railway company has to pay for an injury which they ought not to pay for. I do not know what regulations Dr. Owens makes in regard to the acceptance of candidates who have such abdominal rings. To my mind, in a certain sense it would be disqualifying evidence. I have observed that men over 30 years of age, in a large percentage of the cases examined, had defective vision, and that 20-30 was about as far as they could see with both eyes. I find also in a number of instances that vision in one eye would be 20-30 or 20-40, or in both eyes 20-20.

In regard to the color test, I have observed a good deal of ignorance on this subject, and if the applicants were required to name the colors there would be many that would be considered color blind. To mention color does away with the element of ignorance. The candidate on being asked to select the skeins at once says he has been engaged in the kind of work that enables him to learn different colors. Not a few clerks in a drygoods store fail in naming certain colors. He has to simply select two colors and all shades of those colors, and in this way he is able to determine what belongs to the reds and the greens and avoid putting in any combination colors with them. Out of fifty-one cases examined, I found one candidate color blind, and one with a fully developed direct inguinal hernia with an extremely large external ring on either side, which would permit of the introduction of two fingers. I found one case of mitral insufficiency with compensatory hypertrophy. In this case the condition would not disqualify him for employment now, but of course the compensatory hypertrophy would be against him sooner or later. On our road the superintendent is required to have all applicants undergo this examination. When the slack time came last year and year before, instead of laying these men off for a period of time, they were discharged, but were obliged to seek reëmployment under the same rules that new or recent applicants would have to observe. These men have all been examined, and I think it is the intention of our superintendent, so far as he has jurisdiction over the matter, not to employ any men over 30 years of age unless they come up to a high standard, and as previously stated, I have

observed that those men who are over 30 years of age have some defect of vision.

There is another point in regard to hearing. We find men in the engineering department—I mean the locomotive engineering department—employed as either firemen or otherwise, in the machine shops, who have defective hearing so far as the watch is concerned. In some cases they can hear a watch tick only eight or ten inches, in one case I recall only four inches, and in another the man could only hear the watch tick two inches distant from one ear, and not at all with the other ear; yet the hearing at a distance did not seem to be materially defective. I requested this last candidate to have a specialist examine his ears and determine whether or not there was any disease of the organ. The aurist returned a written report saying that there was no disease of the ear, and that the watch test was not a fair one in this case; that he could hear easily at a distance of twenty feet, whereas he could not hear the watch at all with one ear, and with the other only a distance of two inches. The opportunity of making these examinations has revealed to me a risk which railway companies have taken heretofore in employing men in this capacity, so far as their physical condition of hearing and seeing is concerned.

DR. OWENS (closing the discussion)—This matter of examining applicants for the railway service is an exceedingly important one, and I might say that an examiner is not made in a day. When I first took the matter up, it took me some three months to investigate it, before I felt justified in doing this important work. Now, we have examiners on our roads who do not really know how to examine these men. Perhaps I ought to be ashamed to say it. I know they will be able to do it after a while. The reports come to me and I pass on them. If there is anything wrong we rectify it in some way. How can we get our examiners to thoroughly examine these applicants? In the first place the matter must be thoroughly studied. I have recently come in contact with the report of a committee of the Royal Society of London on this subject. It takes the subject up in all its relations, criticising the methods of the Board of Trade which seem to be so very defective that they were not accepted at all. It is one of the most valuable pamphlets on the subject that I know of. Then there is a book just issued, the "Dalton Lectures," which treats of the subject of color blindness. There are various text-books on diseases of the eye that one may pick up, but they do no not go into the subject of color blindness to a sufficient extent to enable the examiner to do his work well. I intend to get a number of these reports and will have the surgeons connected with our roads procure them through us.

It is said that applicants who have made some mistakes with worsteds are able to name the colors of the flags and the lanterns correctly. The question is whether a man who makes mistakes with worsteds and does not in the case of flags and lanterns should be accepted. That throws into the examination the naming of colors which is a defective method. On the Illinois Central Road the examinations were made first with worsteds, and then Mr. Jeffrey ordered that the examinations be repeated, and the applicants were examined with flags and lamps. I was timid as to the efficiency of the latter method. My assistant, Dr. Allport, of the Illinois Central Road, has examined many applicants with flags and lanterns, as well as with worsteds. The conclusion has been reached that men who are color blind with worsteds will make mistakes with flags and lanterns.

Forty Thousand Acres of Land for Insane Asylum.—One of the acts of the South Dakota Legislature in 1895 was to appropriate and set apart for the use and benefit of the Northern Hospital for the insane, forty thousand acres of the land granted to that State for "other educational and charitable purposes."

APPENDICITIS; PROTEAN TYPES.

Read before Jackson County Medical Society at Kansas City, Aug. 22, 1895.

BY A. H. CORDIER, M.D.

Lecturer on Abdominal Surgery Kansas City Medical College; Vice-President American Association of Obstetricians and Gynecologists.

KANSAS CITY, MO.

To the members of the Jackson County Medical Society a paper on appendicitis may, on first thought, seem a trite topic for discussion, yet when the many phases of this treacherous disease are called to mind we at once realize that it is a topic the importance of which demands oft repeated discussions, that a more unanimous opinion of the pathology of the disease may be obtained, and its proper treatment better understood. In the face of our more advanced and modern pathologic knowledge we yet have conscientious practitioners who claim that they have never seen a case of appendicitis, and another class also exists, that admit having cases, but claim the ability to cure them, denying the probability of a death from the disease. A still more liberal class may be found that is willing to meet the surgeon halfway and become associated with him in the case, waiting and watching for the so-called operation indications to spring up. It is just this delay, too often, that results in the signing of a death certificate. A few days ago a very intelligent, thoughtful professional gentleman (a minister) met me on the street, and referring to a late case of appendicitis upon which I operated said, "I am glad to hear that one case of appendicitis has recovered after an operation." It has crept into the minds of not only the laymen but of the profession, in many instances, that the mortality from this operation is high. This deduction is in part correct, but thanks to the converting evidence of the post-mortem and operating tables the deaths from delayed surgery are of less frequent occurrence than formerly. If any one disbelieves in the advisability of operating in appendicitis in almost every case, he will quickly change his views if present at a number of operations, or if he witnesses a few post-mortems on patients dead from the disease. I do not believe that every patient with a pain in the region of the appendix should be subjected to laparotomy, but I do think that when the diagnosis of appendicitis has been made, if every case was operated upon by a skilled surgeon, the mortality from the operation and the disease would be almost *nil*. A great and dangerous mistake is often made in waiting for the operation indications, as they are usually called, to spring up in these cases. Every case of appendicitis is symptomatically an individual, and the surgeon or physician who looks for a stereotyped case will hunt a long time before the case will be found that exactly tallies in its manifestations with a book description. A large and varied experience engenders the best judgment in correctly interpreting the manifestations of the protean types of this pathology; not only experience in seeing the cases from a practitioner's point of view, but from the surgical and pathologic.

A bright but decidedly conservative practitioner once told me, as I was making preparations to operate on on appendicular abscess, that if the subject was his child he should not be operated on, but after witnessing an operation that revealed a large amount of stinking pus, and a gangrenous appendix, he at once turned over a new leaf, and I have since operated upon three cases for him, with success in all four cases.

In the catarrhal form of the disease a symptomatic transient lull is often noticed, but sooner or later a recurrence of greater or less severity supervenes, and the sufferings and dangers incident to a relapse are repeated. In this form of the disease the mucous membrane of the appendix is primarily influenced, the subsequent attack invading more and more deeply the muscular and other structures of the appendix, thickening its walls, cutting off the proper blood supply by these interstitial infiltrations, obstructing the proximal end of the canal at Gerlach's valve, and inducing an extra amount of secretion into the distal portion; this in turn becomes infected usually with the bacterium coli, and a simple catarrhal change is converted into a septic purulent one, to be followed by local (perforation) or general (gangrene) death of the organ. It has been the exception, not the rule, that I have found a foreign body in the appendix. In one case I found an orange seed, in another a peanut kernel, and in another a piece of chewing gum.

This inflammatory change is prone to attack the subserous tissue and lead to an abundance of exudation, the first step nature takes to protect the general peritoneum. This inflammatory edema extends to the surrounding peritoneum, agglutinates the surfaces, and thus adhesions are formed, nature's barrier. If there is only one attack, and if that spell stops short of suppuration, the veil-like adhesions are absorbed. If the case was a catarrhal one the changed walls of the appendix approach the normal again, and the appendix may get entirely well, or more likely be ignited at some future time, or number of times, ultimately proving fatal.

A fecal concretion is often the cause of a perforation or gangrene of the appendix. The inflammatory forerunners are protective processes and are not of a truly septic character in the initial stage, and it is to this fact that we must attribute the prophylactic building of these barriers. A truly septic peritonitis rapidly spreading is not preceded by these limiting sentinels, consequently is rarely limited. A perforated appendix, liberating large quantites of septic matter into the peritoneal cavity, unless removed quickly, and followed by the most careful toilet, inaugurates a fatal form of peritonitis. They die, if not saved by surgery, as quickly as by a perforated gunshot injury to the intestines.

In a case of appendicitis, primary or recurrent, can we tell whether a perforation is going to take place or not? I say no. Can a large per cent. of the cases be looked upon as dangerous from the time a diagnosis is made? Yes. Have we a remedy in the list of drugs for which any one has claimed that it will prevent or cure an appendicitis when once developed? No. Is the mortality from the operation, when done timely, high? No. In what class of cases of appendicitis is the mortality following an operation highest? In cases where hot stupes and large doses of morphin have been used, and delays countenanced. Is the operation safe and easy for any one to perform? No. I know of no operation in the domain of abdominal surgery that requires more surgical skill and knowledge than that of appendicectomy. When to stop in the operation, and when to go ahead, are problems of grave import confronting the surgeon in the midst of an operation. Upon his decision depends the life or death of his patient. It is not an operation that is safe to place in the hands of the novice. It is very essential here to know what not to do, as well as to know what should be done. After an individual has had one or more attacks, and is seemingly well, has he any assurance that he is not going to have another one, or that the next attack will not prove fatal? No.

Case 1.—Appendicular abscess; rupture into cecum; recovery. J. M. L., male, age 45, was taken sick with uneasiness and pain in right iliac fossa, diarrhea, temperature ranging from 99.5 to 102 F. Pulse 80 to 120. After the beginning of the attack he drifted along about as above for ten days, all the time having more or less tenderness and pain in region of appendix. A week after the beginning of the attack an induration developed over or about the cecum, not very painful on pressure. Some two weeks had elapsed when he felt a "giving away" in the mass and a few hours later passed pus and blood per rectum. The mass soon disappeared, and he is to-day up and about, attending to his professional duties.

It would be extremely illogical to reason that as this case made a symptomatic recovery others, seemingly similar, would do likwise. This case was undoubtedly due to the presence of a tubercular ulcer in the appendix, as its slow progress, abundant plastic protective barrier and the history before and afterward indicates. A diarrhea had preceded the case for months. A daughter had died of tubercular peritonitis and ulceration of the intestines, and another child had developed tubercular synovitis. This case should have been operated on early in its progress, and not been permitted to run the gauntlet of dangers incident to procrastination while waiting for nature to relieve herself. Nature is a poor physician or surgeon in appendicitis.

Case 2.—Appendicitis; one mild attack; recovery. Miss L., age 16, was taken with uneasiness over appendix acccompanied with some little rise of temperature, 95.5 F., normal pulse, obstinate constipation lasting ten days, no symptoms of intestinal obstruction. All forms of cathartics and enemas given with no response; no vomiting or nausea; general condition of patient all through attack good; no induration, and very little tenderness at any time. This case was watched by myself and the attending physician right along until bowels moved well and symptoms disappeared. I contended all through the case that it was not an appendicitis, but an impaction of cecum, and advised against operative procedure. The attendant claimed that it was an attack of appendicitis, thinks so still, and has reported the case as one cured with medicines. The patient has remained well.

Women do not have the disease as frequently as men (one to six). The obstinate constipation, absence of tympanitis, the complete subsidence of the symptoms following bowel movement, and the nonrecurrence of the attack, in my mind warrants me in yet maintaining that she did not have an attack of appendicitis. Let us admit that she did, and has permanently recovered, it only serves to establish the rule by being an exception.

Case 3.—Recurring appendicitis; operation in the interval of attack; recovery. H. E., age 20, male, was first attacked with severe pain in region of appendix one year ago, since which time he has had thirteen attacks, each lasting from three to eight days. The attacks have been accompanied by constipation and great distension, the latter often preceding the painful exacerbations a day or two, the tender area usually extending over a space the size of the hand but not as painful on pressure as that usually accompanying a true localized peritonitis. There has not at any time been a localized induration of the surrounding or overlying structures. The attacks have usually been marked by a slight rise of temperature (100 F.), the pulse being very slightly increased in frequency. A disposition to flex the thigh upon the abdomen during the attacks, has been a marked feature in his case, and is explained by the recognition of the fact that the psoas and iliacus muscles are relaxed while the thigh is thus passively flexed upon the abdomen. Any disturbance of these muscles causes more or less movement of the inflamed appendix through its mesenteric attachments, thus giving rise to the increased pain. The genito-crural, anterior crural and ilio-inguinal nerves being immediately (in part of heir course) beneath the peritoneum, were more or less disturbed in this case, as manifested by the referred pains in the course of their distri-

bution. During the acute attacks he has been treated by as many as six physicians, in three States. Some of the six are probably reporting this as a cured case of appendicitis without surgery. The attacks were so severe that he would barely throw off the effects of one until another exacerbation would supervene. The appendix could easily be rolled under the finger before operating. Operation July 3, 1895. The appendix was found to be greatly thickened and indurated as a sequela of the repeated attacks of inflammation. Its walls were one-fourth of an inch thick. The operation was performed in the interval of the attacks. His recovery was perfect.

This is one of the most dangerous forms of the disease, as the repeated attacks bring about vascular and other structural changes that favor the death of the appendix (gangrene) and that, too, with no walling in by the protective surrounding adhesions.

Case 4.—Appendicitis obliterans, followed by symptoms of intestinal obstruction. H. G., male, age 28, nine years ago had an attack of what he called inflammation of the bowels, and his right side "caked" and was extremely tender. He had a high fever, and was very sick for a number of weeks. This soreness and pain continued with varying intensity up to the next attack, one year later. This is a diagnostic feature of this form of appendicitis; that is, the soreness and tenderness persist in the interval of the attacks. This second attack was very much the same as the first, lasting three weeks. After this relapse he had fairly good health for four years, with the exception that there was always uneasiness in the region of the appendix and many attacks of what he called "colic" and indigestion, often having to resort to cathartics to keep the bowels regular. At the end of this four-year freedom from severe attacks another "spell" was initiated by severe pain in the region of the appendix and "back ache." Had fever, increased pain and tenderness, lasting two weeks, leaving him seemingly in about the same condition as before. He was often troubled with gas pains and distention, and had "colic spells." He had several mild attacks between the last severe attack and last June, or four years after last severe spell. In June he came down with a severe attack very much like previous paroxysms except that the tenderness was less, no tumor was discoverable and that he had much more gaseous distention and difficulty in getting his bowels to move. Soon after this sickness I saw him, and advised an operation.

I found the appendix atrophied, and its canal completely occluded (appendicitis obliterans). Length of appendix about one and one-half inches. It rolled under the finger like a tendon or a fibrous cord. An inflammatory band the size of the finger was attach to abdominal parietes near internal ring and crossed a coil of bowel and attached itself to the mesentery, thus making a partial intestinal obstruction. This was divided and the appendix removed. He left the hospital in two weeks, and has been entirely relieved of all his painful symptoms.

We have in this case one of the best appeals for an operation in all similar attacks in view of the prolonged suffering and dangers incident to these repeated attacks, and the damage wrought by the delays. Each attack that this man had, endangered his life far more than an operation in skilled hands, having in view a permanent cure and relief for his sufferings.

Case 5.—Appendicitis; gangrene of the appendix; operation; recovery. A. K., male, age 20, was taken on a Saturday night with pain and uneasiness in right iliac region, the pain extending down the inner side of the thigh and in the course of the distribution of the external cutaneous and genito-crural nerves. Very little elevation of temperature (99.5); pulse 84. Hypodermics of morphia were given by the attending physician. The pain and his general condition remained about the same up to Monday afternoon, when I saw him for the first time. Pulse 92 full and "vicious." Temperature 100.5 degrees F. Bright and cheerful except when pains would come on caused by any peristalsis of bowel or movements of thigh. Bowels acted during the night. Tenderness over area size of hand and a false sense of induration over appendix due to rigidity of the abdominal muscles. This condition is often misleading, and added to the edema that frequently attains may be easily mistaken for a walled-off intraperitoneal mass or abscess. At the operation the appendix was found to be gangrenous and entirely free from surrounding protective barriers. His recovery was complete.

Without an operation his blood-vessels would have been filled with embalmer's fluid within thirty-six hours. An appendix with no walling off, when gangrenous or perforated, kills quickly unless the surgery is immediate.

Case 6.—Appendicitis, recurring, with symptoms of bowel obstruction due to adherent appendix; operation; recovery. Mr. N., aged 44, has had a number of attacks lasting from a few weeks to two months. After last attack, six months ago, he has repeated colic spells, accompanied by obstinate constipation. The cecum would become enormously distended with gas, resembling, as he described it, a croquet ball in size. Operation revealed the appendix long and hard to the touch (appendicitis obliterans in its early stage). The distal end was firmly attached to the iliac vessels. It was ligated near the cecum and again near its distal extremity and removed. The position of the appendix was such that it was pulled upon when the cecum became distended and added to the cause of the symptom producing attacks simulating bowel obstruction. His recovery was complete. He has had no return of his old painful attacks.

Case 7.—Appendicular abscess; operation; recovery. W.K., male, aged 19, was taken down one week before I saw him with fever 102. Pulse 80 to 96. Pain and tenderness gradually getting more severe; constipated bowel, tympanitic; well marked induration in region of appendix. Operation consisted in simply opening the abscess, packing with gauze and leaving wound open to granulate from bottom. Recovery in a few weeks.

This case was one in which nature had time to wall off the appendix before it perforated, but the barrier sooner or later would have been torn down and a death from peritonitis recorded.

Case 8.—Perforative appendicitis; immediate operation; recovery. Mr. Wilson, aged 22. This man, stout and healthy was taken with most intense pain in iliac fossa, accompanied by a subnormal temperature (shock) but with a pulse of only 90. Abdomen distended. A diagnosis of perforative appendicitis was made and operation performed within two hours of the development of the symptoms of perforation. He had been having an "uneasiness there for three days." A septic peritonitis was already inaugurated, but a thorough irrigation with a normal saline solution and gauze and rubber drainage saved him.

Case 9.—Perforated appendicitis followed by a diffused septic peritonitis; operation two days later; death. Miss H., age 16. A lovely young girl, had been complaining for a week, with pain or uneasiness in the region of the appendix. Constipation; little elevation of temperature. Two days before I saw her a most intense pain was felt about the cecum followed by a condition of shock from which she soon rallied, but the pain spread rapidly over the abdomen. This subsided in eighteen hours. At the time I saw her she had a pulse of 90; temperature 100.5; free from pain except a sense of distension in abdomen; was bright and cheerful; insisted, in fact, upon getting out of bed and having her photograph taken standing, not over half an hour before the operation. These septicemic patients often manifest this cheerful disposition up to within a few moments of death. Operation revealed a diffused septic peritonitis, with a perforated appendix. The intestines were as lifeless as a rubber hose. The abdomen contained full half a gallon of septic fluid. Irrigation and drainage failed to save the case because her diaphragm, spleen and liver were bathed in pus, and she was thoroughly saturated with the products of bacterial chemic changes.

An early diagnosis and speedy surgery would have saved this case, also. With the laymen operations on dying patients bring reproach to surgery because they fail to save the cases. This is true not only with the laymen but with some members of the profession. To me it seems that there are no plausible grounds for a diversity of opinion as to the proper course to pursue in the management of these cases when once a diagnosis is made. Let us, as practitioners and surgeons, get together on this subject. It is not necessary to provoke any ill feeling (which I have often seen done) in discussing this topic. Let our deliberations be friendly and gentlemanly, and sooner or later the truth will prevail and our patients will reap the beneficient harvest, the fruits of our mutual deliberations.

COLLES' FRACTURE.

Read before the Mississippi Valley Medical Association, November, 1894.

BY JNO. EPH. LINK, M.D.
TERRE HAUTE, IND.

I had kept no notes or reports of cases incident to the subject in hand until I determined to prepare a paper to be presented at this meeting; therefore I shall necessarily be somewhat limited in statistics, but hope in what I do by presenting a few typical cases to at least suggest an idea as food for thought. If I fail I hope you will pardon my presumption, and if I succeed that it may be registered as a merit of credit to the anatomic field of study, observation and labor.

Deformity in all cases is either the result of violence or muscular spasm from irritation, or both. In the case of Colles' fracture and other injuries of the wrist joint, this is indeed particularly so. Especially the progressive form from reflex irritation.

Some of the members present may remember my work on bandaging before the Society some years ago at Indianapolis, in which I attempted to show the advantage of a smoothly applied bandage in successive layers; this meets the indication in cases of injury to tissue, rest without restraint, and this in every instance must hold good in order to avoid irritation from the dressings, so far as possible, along with a too long enforced restraint and consequent loss of action of muscle. Yet, while we must necessarily use more or less force in the adjustment and retaining a fractured bone in position, I think I must have about perfected a happy medium between mechanical means and nature's resources.

In the first place, and as holding good in all cases of fractures, dislocations, etc., if the muscles are perfectly embraced in a gentle environment they "go to sleep," and thus half the work is done through the overcoming of spasm in reflex irritation. Then, by gentle traction and pressure well directed from time to time, progressively and frequently applied, perfect results may be obtained; whereas, on the other hand, if severe means are used and a single effort at replacement, great violence is done, and the results will be imperfect and more or less unsatisfactory. That any one method in the details of manipulation will prove equally successful in the hands of every one I can not claim, nor can we reasonably hope. As I often have occasion to illustrate, as showing the absurdity in the quibbles of council in medicine over different remedies in the same class: If two woodmen, the one with a crooked, the other a straight-handled ax, each having familiarized himself with the use of his tool, should enter into dispute, each claiming superiority for his kind; for any one must see that should they either one or both change, the results in the day's work at hand would be unfavorable. Each would do better work with the instrument he is most familiar with.

First in surgical success is knack, mechanical skill, more or less cultivated, with a thorough education in applied anatomy with its physiologic process, backed with practical experience and original clinical observation. The exception, as it may appear, to my general rule of bandage and position, "rest without restraint," without arbitrary environment and mechanical contrivances, is in this class of cases made necessary in the first place by the peculiar flatness (shape) of the forearm, wrist and hand; and secondly the necessity of mechanical and somewhat forced means in bringing back to the normal line the peculiarly displaced and imperfectly separated fragment, more or less green stick or eggshell fracture, as it may happen to be in its nature according to the distance from the wrist articulation, sometimes involving the articular plate and strictly of the impacted or crushed eggshell variety. This latter, I think, I shall be able to show, can be remedied more successfully by my method of manipulation than by any other, not only in a larger per cent. of favorable results, but in every instance less deformity than has ever been reported. Why? First, by the taking off of muscular spasm before an attempt is made at adjustment; and secondly, by a gradual molding of the parts through well-directed means in the easy, snug-fitting environment, namely, nature's happy yielding to persuasion in the normal line. In all my work involving bandaging, especially next to the skin, I never allow myself to make a reverse. I allow the roller to run up a member, laying the bandage smoothly and only use reverse when the limit of the part to be covered is reached. This can in many instances be done without the reverse turn, by passing around an enlarged joint, as the knee or around the hips; or, in case of the ankle-joint injuries, when the calf of the leg forms sufficient bulge with narrowing above to enable me to get the descending spiral. In thus laying on in the obliquely longitudinal we get strength and support in keeping the bandage from slipping, and avoid the rolls or thickness and like results by which the skin is creased and the physiologic function of the tissue is more or less interfered with.

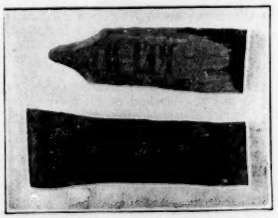

FIGURE 1.

I here present you with two splints from a case treated as shown in photograph No. 1, the palmar or anterior, and dorsal splint, hurriedly shaped out of a cigar-box lid with a dull pocket knife. The shaping at the distal, or palmer end is done, as you may see, much in the fashion of the old Day's splint, and is left just long enough to catch a turn of the bandage as it embraces the metacarpal region below the thumb; and in the shaping of this extension we simply accommodate it to an easy fitting in the fold between the enlargement on the thumb and little finger borders of the palm. It will be seen to consist of a short acute curve, so as to fit the muscular enlargement at base of the metacarpal bone of the thumb; the other longer and less curved, nor so deep, to fit that at the base of the fifth or little finger metacarpal and carpal enlargement. The dorsal splint you will see is, in this instance, made of a cigar-box lid. The lower end is made to correspond in width

to the bony structure of the hand at a point just below the thumb, about midway between this and the knuckles, or metacarpo-phalangeal articulation. You will observe that the splint I here show you is curved in its general outline in its upper two-thirds, and has been shaped in the manner to be suggested, and merely shows the outline of the forearm, and while a certain kind of board has been used in this instance nothing more is required to carry out the principal of dressing intended to be taught than to lay a thin piece of board (zinc or tin will answer as well as wood) of sufficient width and length and mark it on the reverse side, using the well limb for a pattern. Cut it a few lines narrower than the member with an idea of the limit of the bony structure. I should recommend that for comfort and the very best results; the upper end of the short or palm splint should be almost or quite the width of the limb at the corresponding point. Here, now, we have a crude frame-work of our dressing, but like that of a finely upholstered piece of furniture it will soon be out of

FIGURE 2.

sight, and to all outward appearances out of reckoning. Yet it is no less an essential part, like the solid foundation of a grand superstructure in building. The dressings in compress and bandage, as you shall see, will finally meet all indications to reshape the disorganized and displaced fragment of fractured bone.

First, now I should cover the surface of the splint with two or more thicknesses of old soft muslin, as a general precaution against violence in pressure or rubbing of the sharpened edges against the skin. For compresses they must be of full sufficient thickness to fill in the natural depressions carried to a little more than a straight line with the prominent points of bone included beneath the splints.

I find on inspection of the dressings removed from a lad of twelve years, a photograph of whose arm I show you (see photos. Nos. 2 and 3 results), that the long compress extending from the upper broad end of the short or palm splint to a point near to the thumb curve, is six thicknesses. This, with the edge of the splint slightly beveled and considerably so in the concave at the upper end, fulfills the main idea in fitting and skin protection against mechanical irritation from the splints. Now comes the more important point, that of proper shaping in adjustment of the bone with a view of the normal, or non-deformity.

I have here, as applied in this case, a compress of rather thick old sheeting, ten layers, about $2\frac{1}{2}$ inches in width and an inch possibly wider than the splint, thus filling in the space at the edge of the splint so as to form an easy embrace of the limb beneath the splint and secondary bandage. This is placed upon the splint so as to extend from a point above the enlargement of the lower end of the radius to within an inch, more or less, of the upper end of the splint, as indicated by the length of the splint in accordance with the depression in the curvature of the normal or sound bone. On this I have laid another of eight thicknesses about two-thirds the length of the other and half its width. (See photo. No. 4 of compresses in place on splint.)

In this case we have what fits almost exactly the

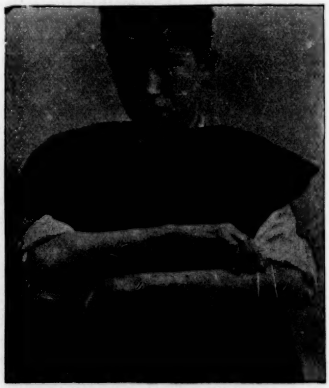

FIGURE 3.

well limb, possibly a little more than a filling of the curve to a straight line. This will always be a wise provision as there will be a hundred chances to one of too little rather than too much. The tendency always being to displacement backward, as we almost invariably find it in such cases of injury.

As second in importance we will look to the padding beneath the dorsal or long broad splint. Here I find a covering of muslin wrapped about more or less securely, adjusted with a view of preventing its slipping and displacement beneath the bandage after adjustment. All this may be omitted, as the abrupt corner at the ends over which the bandage should be made to lap will be sufficient to keep the splint well in place. But here again comes in the element of precaution of being on the safe side against possible defect where defect alone can possibly obtain. We find on the lower end of the splint a broad compress of several thicknesses of muslin, broad enough to overlap the edges of the splint and of only sufficient length to extend from the point of fracture over the articular end of the radius, down over the carpal

bones and all, to a point near the end of the splint. Another compress of about the same thickness, commencing about 2 inches above the upper end of the lower one and well above the fracture point extending to a point above within an inch or less of the upper extremity of the splint. The idea here involved is to allow some latitude for motion between the abrupt ending of the splint, together with as you see, in photograph No. 1, the cutting out of the edge to a bevel and concavity, so as not to do violence to the skin. While the front line along the lower end of the radius is nearly straight, the danger of its remaining too low seems to me to require this additional precaution in so padding the two ends of the splint, the one over the distal, the other the proximal ends of the fractured bone with an open space between. Now with this padding and the cutting out of the ends of the board to a concave we have our mechanical contrivances complete, and with the patient before us we begin with the wet roller bandages, always of soft, well-worn muslin. With physiologic processes in view I now begin at the point of injury embracing the wrist joint; laying the bandage with firm and gentle binding, allowing it to lie smoothly, the roller running more and more spirally as the bulging of the limb directs, until the elbow is reached, when, after a

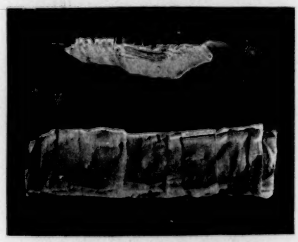

FIGURE 4.

turn above and over the olecranon process with forearm flexed to or near a right angle with the arm, the bandage is easily made with a circle or two in the descending spiral to reach the wrist and around again. Probably this time or the next I shall allow the bandage to encircle the hand below the thumb, then up over the wrist and, as before, embracing the muscular part of the limb with some view to the controlling of muscular action, spasmodic and voluntary—all desirable in the view of necessary rest to the fractured ends of the bone. I so continue, roller after roller and layer after layer, until I feel that the indications as above are fulfilled, avoiding unnecessary and cumbersome dressings. Now I place my short or palm splint and compress with a few turns of the wet roller, until it is snugly but not tightly held in place. After satisfying myself that the splint is in proper place, its surfaces on a plane with the bones of the wrist, the palm of the hand resting flatly against the body while the patient stands with elbow flexed, I now run an additional roller a few turns around so as to embrace the upper and lower ends of the splint, taking a turn or two about the metacarpal region below the thumb so as to catch the palmar projecting front as well as the upper end of the splint and firmly fix it in the longitudinal to prevent it from slipping up or down. We now have it all well fitted to its mechanical shapings, not only in the depression and prominence, but as you see extension by gently inducing nature to seek the point of comfort as per the fittings at the base of the hand.

We next take up the dorsal splint and compresses, placing them as above arranged, and with many turns of the wet roller up and down from the knuckles, the edge of the bandage overlapping the end of the splint around and up to the elbow, or at least well above the upper end of the splint, until the fixation in adjustment of the splint is perfect. I now grasp the embraced member, firmly pressing the two splints together with one hand while with the other holding the hand as in friendly embrace in hand-shaking. With gently increased pressure on the splint and simultaneous pulling in extension I make the first forced effort at adjustment. This is only done to the point of endurance of the patient short of suffering;

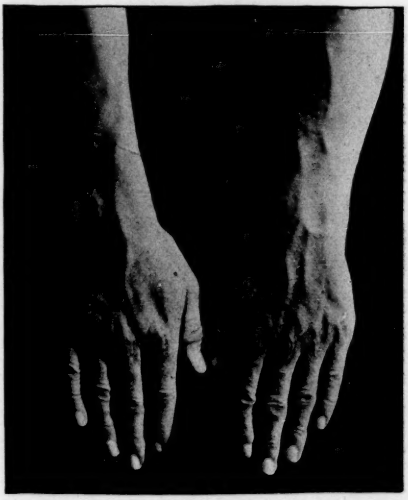

FIGURE 5.

in fact few complain at all, as the action is so perfectly in line with the normal and entirely free from muscular spasm, owing to the easy and even compression by the environments, that a sense rather of relief is experienced. Many have told me that from beginning to ending of the dressing and extension, the sense of relief was marked. After a somewhat extended pulling and pressure by gradually applied force up to my full power, so maintained to the tiring of my arm to a stage of necessary rest, I as gradually relax as I applied the force. The limb is now placed in an easy sling suspended about the neck in easy flexion at nearly right angle, looking well to it that no binding from a cord-like rolling and tightening of the bandage about the elbow obtains. I dismiss my patient for twenty-four hours with the injunction to keep up somewhat constant passive motion and massage of the hand of the crippled limb by that of the well; the frequent and somewhat extended elevation of the hand from

time to time with a view to avoiding congestion and stasis with painful results in swelling with tightening of the bandages.

The next day, and the next, I see my patient, looking to it that my general instructions are carried out; that is, that the fingers are supple, the hand spread by pressing in the palm; that there is no undue swelling from lack of the precautions given, especially that of extension with extreme elevation of the hand. I again grasp with very gentle hold, and careful precaution against causing pain, in the effort at further and gradual extension and proper continuous and progressive adjustment of the fracture. This can safely be deferred in some measure until the stage of congestion and extreme irritation has passed, which will be by the fifth or sixth day, when you can use all the force in your power both in grasping and pressing the splints firmly against the bone without causing suffering on the part of the patient, but with comforting assurance to yourself, and which you can impart to him, that the bone will necessarily be in perfect adjustment and as good as ever if continuously and persistenly persevered in for a sufficiently long period of time. And now comes the time to see and instruct the nurse, some member of the family or other person who can be relied upon as in constant attendance, to grasp the limb and make extension as you have done, and you must carefully

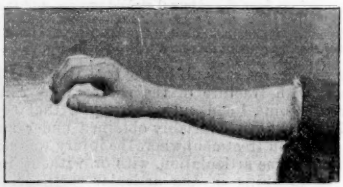

FIGURE 6.

instruct them. This may be done, and if at all possible should be done every three or four hours, and at least three or four times a day. The patient can, if properly instructed, with some comfort to the tired feeling of the confined muscles do much in this line by massage of the forearm, hand, fingers, etc., making, at frequent efforts, some extension by grasping the fingers and hand and pulling on them, bringing only the muscles of the arm above the elbow into acton (never below) of the injured limb. Six weeks should be the limit of such treatment and even longer is safer, and I have no doubt in many cases better and in all safer as against deformity from enlargement in callous, exostosis, etc., the results of a lingering tendency to chronic irritation and inflammatory new formation deposits.

The case that I am able to present to you to-day in a photograph of the injured member and from which these dressings here were removed is a typical one in point of not only ordinary results of such treatment but extraordinary, in this, that he had, prior to this injury and but a few months before, suffered a similar fracture of the same wrist, and from neglect to follow out my instructions (not coming to see me and I unable to find his place of residence, he removed all dressings in four weeks) with the result of excess of callous enlargement and some consequent deformity. I had by mere chance met him, and on recognition called him to my presence for examination, and made some uncomplimentary criticism of his neglect to self and slighting of my injunctions in behalf of his future welfare, the good of science and my reputation as a bone surgeon, so much so that he came at once to me and followed out my instructions, this time, to the letter. Not only this, but on my leaving for Europe he promised to wear the dressings the prescribed time of two months. He did better; presenting himself to me on my return still wearing them, ten weeks from date of injury, February 27 until May 6, 1894. There is now, as you see, no enlargement of the parts immediate, mediate or proximal. I am sure that an expert would find much difficulty in data of evidence to identify the member injured or distinguish between the two, injured or non-injured.

Arthur D. K., aged 20, was injured by falling on the left hand, from a leap in the air in an effort to take high ball, when he was struck by a fellow player and knocked from the erect equilibrium: he fell full force on the hand, the whole weight of body striking the arm; thus weight and leverage were brought to bear in producing a typical Colles' fracture—the radius being fractured about 2 inches more or less above the wrist joint, the bone being bent in its opposite curvature from the natural, with a resistance in an effort at replacement which shows green-stick fracture conditions. I use a primary or skin

FIGURE 7.

bandage with wetted roller of old well worn muslin covering with two or three thicknesses of spiral layers, one turn encircling the limb above the elbow joint, descending to the wrist and up again, and so on. The cigar-box splint used on the anterior or palmar surface I here present also in likeness from photo. No. 2; likewise the longer and broader dorsal or posterior splint. The anterior compress is composed of a piece four thicknesses $4\frac{1}{2}$ inches long; another laid in the center of this $2\frac{1}{2}$ inches long of six thicknesses; a third 2 inches long consisting of twelve thicknesses, and on to this $1\frac{1}{4}$ inch long of six thicknesses. This is formed from my judgment and by testing on the well arm as to the thicknesses required to fill in the natural depression, or to bring the injured and displaced bones to the natural line in curvature. The dorsal splint is padded with two compresses. The lower one is $2\frac{1}{2}$ inches long of eight thicknesses. The upper 3 inches long consisting of eight thicknesses and are placed two inches apart, leaving a vacant or hollow space over the center of the line of depression. These are placed, as intended, on the splints and secured to the injured hand with roller bandages well wetted; first the front with two or three layers of the bandage, with a turn or two below the thumb catching the palmar point, the upper limit embracing the broad upper end of the splint, one edge of the bandage embracing the splint the other the forearm just above, and this throws my bandage back to the descending spiral to a point above the wrist or hand as preferred. Then the posterior splint is placed with its compress and secured much in the same way. The two splints are now in position, at almost exact parallel as to their transverse axis. I now grasp the encased limb, at a point about opposite the injury, with my right hand, fingers to the dorsal and thumb to the palmar, and grasp the hand as in a warm friendly

shake, making with my left gradual extension and pressure at the same time. The patient declares he suffers little or no additional pain, and in fact less than the continuous suffering from time of injury until the commencement of dressing with the primary bandages. He declares that from the moment of commencing the bandaging relief was general and continuous; before, the bones seemed to be getting more and more out of place, pricking painful and causing the muscles to harden in cramps. After the pulling there was no additional pain or soreness, rather less than more; rested a good part of the first night; restless more from restraint than pain. At 1 P.M., the next day I find no pain caused by the extension; says that every time it is pulled upon by assistant a decided sense of relief is experienced. There is little or no swelling, patient using passive motion, kneading and pulling the fingers gently with the well hand. June 1; no swelling of the fingers and no pain, and little tenderness to touch, grasp or pull of forcible extension. June 2; the least perceptible swelling, a slight puffiness of fingers and thumb; dressing a little loosened from shrinkage of the limb. Apply a roller of dry bandage for cleanliness and some addition physiologic support. "I am surprised at the small amount of pain I have suffered," is the voluntary and impulsive expression of the patient following a full power of force-pulling and grasp of the splints, prolonged for four or five minutes. Patient instructed to call at noon tomorrow. June 3; there is no soreness, no tenderness, and gradual and continuous pressure in grasping the splints to my full power, with the like pulling causes only a sense of comfort, relief and strength to the tissues and muscles involved. The patient smiles pleasantly as he assures me, and his brother present, that if all severe surgical operations and dressings were no worse than this they will surely not amount to much. I see the patient the 4th, 5th and 6th. June 8; remove outer bandage and both splints for the purpose of assuring myself that the adjustment was perfect, palm splint compresses sufficient for normal curve, etc. The skin or primary bandage is not removed; added an additional compress of four thicknesses $1\frac{1}{2}$ inches long and another of twelve thicknesses $1\frac{1}{8}$ inch long on anterior or palm splint. No change in dorsal. All compresses are carefully preserved in their exact place on the splint and replaced precisely as they were originally on the arm, the splint mark on bandage and hand enabling me to do this with precision. June 9; saw the case with view of examining as to circulation of hand. All in good condition; patient perfectly comfortable, even on pressure and pulling. June 10; saw case; all well. June 16; removed all dressings, bandaging and splints to the skin and bathed the limb. I replaced all dressings with fresh bandages, using same oompresses carefully kept in place on splints and replaced with exactness as before. Saw the case for two consecutive days. June 22; redressed as on the 15th. Arm appeared well; patient using hand as if nothing the matter. Dressings from now on are used only as compresses to insure against excessive callous. Removed anterior splint July 9. Bandaged the wrist July 16. Rebandaged wrist with flannel. There is absolutely no means of distinguishing a difference in the two wrists. Patient working at manual labor, firing an engine. (See photograph after treatment.)

Case 3.—Walter Fry, aged 11, injured June 19 by falling from a grocery wagon to the street, striking open palm on the ground doubling the limb bark with weight of body on it; body lying prone upon the ground. Dressed in the usual way with with wet roller bandage of old soft, well-worn muslin. Primary bandage of two or three layers covering skin with view of controlling muscular spasm. Length of arm from tip of olecranon process to tip of the styloid process, 8 inches; length of palmar splint in full to the tip between the palm folds, 7 inches; circumference of wrist, $5\frac{1}{4}$ inches; width of palmar splint at wrist, 2 inches; circumference of arm at point of upper end of palmar splint, 7 inches; width of upper end of palmar splint, $2\frac{3}{8}$ inches. First compress four thicknesses, 5 inches long, commencing one inch from upper end extending down to palmar folds. The second compress four thicknesses 4 inches long, commencing $1\frac{1}{2}$ inches below the upper end. The third one eight thicknesses (four 2 and four 3 inches long), commencing $2\frac{1}{2}$ and 3 inches respectively below the upper end. Length of dorsal splint, 8 inches; upper end, $2\frac{1}{2}$ inches wide; lower end opposite the thumb juncture to hand, 3 inches; opposite the fracture, $2\frac{1}{2}$ inches. One thickness of muslin covers the whole surface; upper compress six thicknesses, $2\frac{1}{2}$ and 3 inches (three each respectively) in length, commencing one inch from upper end and extending down to a point a little above the fracture line. Lower compress six thicknesses 3 to $3\frac{1}{2}$ inches long, commencing at half-inch from lower end of splint to a point just below the fracture. The palmar splint was first secured by a number of turns up and down the splint around hand below thumb, catching the narrow point of palmar splint below and embracing the upper end with a turn, allowing a half-breadth of the bandage to lap over on the forearm above the splint, then giving acute reverse to the spiral ascending, thus making it descending, then up and down, lightly but well fitting. Next the dorsal splint is applied, much in the same manner, a number of layers thus giving a soft, thick and firm encasement. I now make gentle (in beginning) pressure and pulling, one hand grasping splints, the other to the hand, increasing to full power of pulling and pressure. I finish by enjoining constant manipulation by the patient with well hand to press, knead, bending and straightening the fingers and thumb, a most important matter in comfort as well as in final results of suppleness, non-anchylosis and general deformity as usually charged to rheumatism, truly a nervous or neurotic condition, similar to above attributed cause, but a reflex from irritation, non-use, etc. I see the case every day, and on the 25th I remove dressings and examine the condition of the parts. I find bone well in position, but not quite enough curve. I add a compress of eight thicknesses to palmar splint, length, $1\frac{3}{4}$ inches, and redress as before. See my patient every two or three days at home or at my office. June 29; redress, adding compress of eight thicknesses to palmar splint, length $\frac{3}{4}$ inch. July 6; redress as before. Action of joint, hand, fingers, etc., perfectly normal. Measurement of wrist at styloid process, $5\frac{1}{8}$ inches; at point of fracture 5 inches, exactly in harmony with the uninjured. I see the case July 17; remove the splint and bandage wrist with a few turns of muslin bandage. Should prefer, if at hand, light new flannel, four or five turns around the wrist-joint pretty tight, as the parts are now used to it, and is best a little tight as a precaution against neoplastic action and for firm support. The case is dismissed with injunction to call from time to time for fresh clean bandages to be worn for two months. July 20; rebandage the wrist. July 30; rebandage the wrist. The bandage had slipped up from the external styloid process, and there are consequently evidences of some thickening of callous. Patient dismissed as safe against possible trouble after the limit necessary to wearing present dressing. (See photo. No. 6).

As these cases were all of the true Colles' fracture variety, with fracture of the shaft about 2 inches above the joint, I can only assure you that equally good results have invariably obtained under similar dressings and treatment where the injury was strictly confined to the articulation, with or without impaction or crushing of the articular cartilage. This latter condition is sometimes difficult to differentiate from sprain or injury to scaphoid or semilunar bones, all of which are liable to produce ugly deformities, more so than where the fracture is higher, with progressive crippled function and pain.

A typical case of this condition came under my observation a short time since. The sufferer was a woman past fifty years of age, in the middle walks of life, a housewife. The case when first injured fell into the hands of a general practitioner and able young surgeon, and should only go to show the difficulties attending the diagnosis and successful treatment of this class of cases. I had a photograph taken showing the two hands in comparison, the injured and uninjured. (See photo. No. 2, Case No. 4. The function of the wrist is much impaired and there is constant increasing deformity and pain. Whilst these conditions are of more or less common occurrence, coming frequently under the observation of the surgeon, and unavoidable in at least a small per cent. of cases, yet I have under the above treatment had universal success for over twenty years in surgical practice. And whilst I consider fracture of the long bones and injuries to joints the most difficult work of the surgeon, never to be attempted if possible to be avoided, by the busy general practitioner, yet, with the above course of handling, there will be no occasion for deformity or crippling either in Colles' fracture or the latter; and whilst the anterior compresses are not needed in replacing fragments of bone

as in the true Colles' fracture, yet they are of equal necessity with the bandage and splints in fulfilling the indication for comfort—"physiologic rest."

In not a single instance under the above treatment have I had a case of deformity recognizable by the laity nor of discomfort to the patient. The only point making it possible of recognition by the expert is the less prominent external styloid process and head of the ulna, but in no sense involving a displacement, as usual, of the styloid process. This obtains through the pressure of the posterior splint, and is avoidable, if particularly desired, by using a thicker posterior splint—compresses cut out to fit the uninjured member.

THE MERCURIALS.

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Many of the older remedies need a vigorous scientific reconsideration from the newer vantage grounds afforded by modern laboratory methods. Certain physical and chemical properties of mercury and its salts, if properly studied in connection with the vast mass of undigested clinical knowledge accumulated during centuries, enable the mercurial group to be singled out as having peculiarities that separate it completely from all other remedies, including those with other metallic bases.

Chemistry and physics are woefully neglected sciences in even the best medical schools, and to this fact is attributable the empiricism of our therapeutic work, and whosoever is equipped with physical and chemical knowledge before becoming a physician will find himself unintelligible to the vast mass of his confrères in an endeavor to utilize those fundamental branches in connection with physiology, pathology and therapeutics. The chemistry of materia medica is left to the manufacturing pharmacist, though it is closely interwoven with biochemical suggestions temptingly held out to any chemical physiologist with the means, disposition and ability to correlate these fields, and thereby win imperishable honors.

Quicksilver is fluid at common temperatures, which conjoined with its great weight and disposition to vaporize, whether cold or hot, sufficiently set it apart from metals generally. Its cohesive power is great when pure, and lessened by impurity admixture. Poured upon a level surface motion may separate off large and small globules difficult to handle; but whether an ounce is divided into ten or a million distinct drops all of them can be readily run into a single mass again by mere approximation of the particles. It is visibly affected by temperature changes, and a very old trick consists in concealing a quill, containing a little mercury, in a hot hard boiled egg, the capering, rolling and jumping of which amuse and mystify children. Glass barometer tubes in the space above the top or "meniscus" of the mercury column accumulate the vapor of the metal, even when hung in rooms with fairly even temperatures. The great specific gravity of mercury makes it useful to gold miners through its insinuating among the gravel, sand, earth and water, lubricating its way and mixing with the gold, "floating" the less weightier materials above the amalgam. Some miners have been known to swallow several ounces of mercury to move their bowels, and they claim to have secured a rapid and satisfactory result while the mercury appeared to be little separated in transit. Invagination of the intestines is occasionally treated with heavy doses of the metal, though not so often as in the earlier part of this century. A few years ago I saw the inflamed and softened small intestines, in a case of the kind, perforated and ruptured by a heavy dose of mercury, causing death before the laparotomy which might otherwise have saved the patient. To a considerable extent what mercury accomplishes in masses in larger tubular structures it may likewise do in smaller cavities when broken up into lesser particles. In absurdly large quantities the metal sinks swiftly through the enteric tract, pushing, crowding, mixing with what it encounters, gliding by, or under, loose material, distending soft receptacles, if obstructed, percolating and comminuting fecal masses, increasing peristalsis, altering their tendency to cohere, and lifting them away from mucous surfaces, finally gravitating in advance of the materials it has mechanically lubricated toward an exit.

Dust and grease dim the surface of mercury and agglomerate to some extent with the mass; from such impurities the quicksilver can be freed by running it through filter-paper cones with pin hole apertures, or by sublimation. Often the filter paper continues to be soiled after repeated attempts to separate the dust, showing that minute particles of foreign matter had been concealed by the metal, though it was apparently clean, a physical peculiarity to be remembered when we reach a consideration of its phagocyte-like physiologic effects.

Bache[1] sums up the general ignorance of the therapeutic action of mercury in these words: "Of the modus operandi of mercury we know nothing, except that it acts through the medium of the circulation, and that it possesses a peculiar alterative power over the vital functions, which enables it in many cases to subvert diseased actions." In an inaugural thesis before the Chicago Biological Society, Feb. 4, 1880, and in subsequent papers,[2] I announced the progress of original continued physiologic, microscopic and chemic observation upon the therapeutics of mercury and its compounds, and shall now review my former articles with such revisions as the succeeding years enabled me to make.

The prevalent medical opinion on the subject is that some unknown compound is formed by the metal and by its salts in the system. Mailhe claimed that the bichlorid was formed in the stomach, but failed to establish his theory. Maisch, Bucheim, Oetingen, Winkler and Jeannel dissent from Mailhe's view. Jeannel suggests the probable formation of the black oxid in the alimentary canal. Maisch denies that this takes place, or that black oxid occurs in old pill masses. Sée argued in favor of an albuminate of mercury as the active agent elaborated in the body. Odling thinks mercury acts as a red blood globule carrying oxygen to tissues. Had any one of these views been established, the mystery would have been no nearer solution. Investigators seem to have been lured away from evident and fundamental principles in imagining no connection between the easily discernible physical properties of mercury and its therapeutic effects, assigning the drug occult, catalytic properties.

[1] U. S. Dispensatory, p. 482.

[2] Chicago Medical Gazette, Feb. 20, 1880; Chicago Medical Journal and Examiner, April, 1880; American Journal of Microscopy, June and July, 1880; Chicago Druggist, 1881; Galliard's Medical Journal, March 17 and 24, 1881.

Physiologists do not disregard the mechanical properties of water, yet mercury has never been considered from this standpoint. Both water and mercury are fluid at common temperatures; both vaporize at all temperatures; both change their specific gravities in passing from solid to fluid and thence to vapor; both maintain extreme division of their particles under certain circumstances, and by loss of heat or under compression cohere in drops and fall. The great difference is that mercury is fourteen times heavier than water and has a different solidifying point. I claim that the simple mercurials, such as pilulæ hydrargyri, unguentum hydrargyri, hydrargyrum cum creta, emplastrum ammoniaci cum hydrargyro, emplastrum hydrargyri, unguentum hydrargyri compositum, linimentum hydrargyri, suppositoria hydrargyri and the oleate of mercury depend for their medicinal properties upon the metal being finely divided, and in proportion to the extent to which this division is carried the therapeutic effects of the drug are augmented. A grain of mercury undivided may have no physiologic value, but when it is separated into a hundred thousand globules and held by an excipient, as in blue mass, from forming large particles, the well-known effects of blue mass are obtained, and the more potent the pill the greater has been the division of the metal. The confections, fats, oils, and other substances, with which mercury in this is blended by the pharmacist, impart nothing to it that changes its character. Though occasional oxidation may occur it will be seen that this is of no consequence whatever. My experiments proved that mercury underwent no change in the system after ingestion, and that it was fully capable of producing all its therapeutic and poisonous effects by circulating in, or obstructing, the microscopic channels of the body.

The first eight mercurials mentioned above contain globules of the metal ranging from one five-hundredth to one one-hundred-thousandth of an inch in size, mixed with substances more or less inert. The first numbers one hundred thousand globules and upward to each grain of mercury in the mass; the second is much more finely divided; the third is badly divided, some of the globules being quite large, as the chalk does not prevent confluence, and it is therefore an unreliable form for administration. The "oleate" contains very minute globules reduced by the oleic acid from the yellow oxid with which it is incorporated. The metal constantly precipitates from this form until very few globules are suspended in the oil. The other mercurials vary more widely in the quantities of mercury they contain, but none of them convey mercury into the system in any other than the metallic condition.

No other metal is capable of comparison with mercury in its mechanical properties and physiologic effects. It is the only metal fluid at common temperature; it resists separation into smaller masses and tends to form larger globules when divided, unless held apart by some substance that will coat each particle separately. Each minute sphere will adapt itself to the shape of the tubular or intercellular space through which it may pass, and will by virtue of its superior gravitating power cleanse many of the parts through which it circulates. The myriad globules released in the stomach and intestines permeate the glandular structures, blood vessels and lymphatics, and act as "alteratives," as we could imagine a foreign body having its weight and adaptabilities, would act when introduced into circulating channels. The distances between the globules prevent the larger sized masses from forming, and even when lying compactly an albuminous coating will effectually prevent cohesion until such covering is broken. I kept for a month a mass of globules shaken up in albumin, and found, after having given a dose to a frog, that the globules maintained their sizes in the tissues of the animal, and that but few had run together by rupture of the enveloping albumin in the stomach, this being easily recognized by the larger sized globules and the silvery luster of the metal which the coating had previously dimmed.

No one disputes the fact that blue mass contains minutely divided mercury, but nowhere have I found any opinion as to the probability that the *mercury alone* thus given produced its well-known effects. Histologic tissues and a finely divided metal have not been considered as amenable to mechanical principles. Both being microscopic are at once relegated to mysterious modes of working, though a billionth of an inch is as much an entity as a billion miles. When the metal, in an undivided or uncombined state, is administered, it rapidly passes through the intestines, without any apparent effect. The cohesive properties of its component particles resist separation. The metal must be well triturated with an excipient to reduce it to globules; shaken up in water a temporary, uneven, yet pretty fine division may be made, but the water opposes only very temporary resistance to the metallic confluence. Honey, fats, oils, confections, etc., when mixed with the fine globules, tend to keep the particles apart. Albumin and glycerin effect a separation better than many substances.

Finely divided mercury presents a grayish appearance, passing into black as the division is made extreme, this condition favoring the reverberations of light from particle to particle until no rays are reflected to the eye. The microscope shows that no change from the metallic state has occurred in reducing the metal to this form. To count the globules in a gram (15.4 gr.) of blue mass I spread it mixed with water over a square decimeter of surface and found an average of 2,000 visible under a very low magnifying power in an area of a square centimeter, which would make 200,000 of these globules in a gram. But under an objective magnifying seventy diameters, more than ten times as many became apparent. Dr. Lester Curtis estimated the size of these globules at from one six-thousandth of an inch to sizes almost immeasurably smaller. In a gram of pill mass there is one-third of a gram of mercury, which would cubically measure one-fortieth of a cubic centimeter. Taking .01 millimeter (Kölliker) as the average diameter of the capillaries, the division of this mass into twenty-five million globules would suffice to reduce all the mercury to capillary sizes. But all are not so reduced, though many are divided up very much smaller. Carpenter[3] asserts that metallic mercury, finely divided, can be absorbed by the blood vessels from the alimentary canal. If these minute globules drop unchanged into the glandular tubules and force their way to the blind extremities, the expulsion of less heavy contents from these tubules would occur necessarily without reference to whether such contents were morbid or normal. In this manner a deobstruent action is obtained by as simple and effectual means as by cannon balls dropped into a large pipe. Peristalsis would assist in passing the same globules onward to other

[3] Physiology, p. 138.

secreting and excreting surfaces, and a few globules of the proper size would thus change the conditions of a large area of minute tubules. After passing the pylorus the simple follicles and duodenal glands are affected as were the gastric tubules and, by thus cleansing glandular structure, restore normal secretion, or, in some cases, induce hypersecretion. The intestinal villi and lacteals pass the metal into the circulation, while the portal vein carries most of it direct to the hepatic parenchyma. Somewhat as the direct aortic connections with the carotid render embolismus most frequent in the left cerebral artery, the peculiar relationship of the inferior dental arteries with the external carotids facilitates mercury accumulation in the cancellated tissue of the inferior maxillary bone, with resulting tenderness and sponginess of gums. The minute globules find easier ingress to, than egress from, the dependent portion of the lower jaw bone; where they accumulate to exert a slow but sure disturbing effect upon the gums and incisors, and finally the molars. The irritation of the globules upon the peripheral nerves of the salivary glands, together with the detersive influence of the metal itself, already mentioned, accounts for the activity of the sub-linguals, sub-maxillary and parotid glands in ptyalism. The question arises, why catharsis does not continue during ptyalism if all glandular structures are affected; the liver being caused to secrete more bile as the maxillary glands are stimulated to salivary excretion? In the first place, the innervation of all glandular structures is not alike, hence they are not comparable in their actions; next, ptyalism succeeding catharsis shows that while the liver and intestines evince the first effects of mercurial ingestion, the superior glands are reached later through the circulation. From this it may be reasoned that mercury inunctions impress the general system rather than the liver or alimentary canal, and this has been proven clinically.

Mercurials load the circulation and emunctories with effete matter because of their deobstruent effects and ability to insinuate their particles among all tissues, separating some morbid or ulcerated portions from the healthy, by the great and universal law of heavy bodies acting in the line of "least resistance." If the bile is improperly diverted or suppressed, it restores it, by opening the channels through which it normally flows; if superabundant from organic obstruction it would regulate its quantity in the same way by affording exit for morbific causes. Its aplastic action is due to the capillary and lymphatic cleansing it produces; the million minute globules pushing open circulatory channels and preventing accumulation, as well as affording means for absorption. Provisional callus and wound healing is interfered with by globules breaking up new tissue and interfering with its formation as would any foreign substance. Mercury has been distilled over in considerable quantities from the bones of those who have died from mercurial cachexia, the little particles finding stopping places in the cancellated tissue removed from more active circulatory influences, and, in excess, doubtless dissecting away the periosteum, filling the lacunæ and canaliculi, thus producing caries.

Eld, Buchner, Cantu, Jourda, Anduoard, Foureroy, Gmelin, Byanon, Mayençon, Bergeret, Sakowsky, Osterlin and Heller have found mercury, regardless of the form given, in the blood, urine, serum and pus of ulcers, in the saliva, feces, seminal fluid and aborted fetuses of salivated women, in every conceivable secretion and every tissue. Naunyn[4] says: "It has been proved by good observers that mercury is of relatively frequent occurrence in the bones in quantities readily discernible to the naked eye. Years after mercurial treatment, I have found it in biliary calculi. . . . If an albuminate be formed it must be again decomposed, for elimination of mercury sometimes occurs in non-albuminous urine, while albuminous urine sometimes contains free mercury. Mercury is also eliminated by the bile, saliva and sweat. In the finest globules, it is to be found in the bile, urine and feces after inunction."

Taylor[5] recovered globules from the brain and liver which averaged $\frac{1}{2600}$ of an inch, while those recovered from the kidneys were still larger. Very often the word mercury is used in a loose way by authors to include the salts as well. In these cases the usual chemical tests were evidently applied for the base, and the radical was undetermined. The microscope would have been effective enough for the discovery of the metal, but nowhere does any use appear to have been made of this instrument in these investigations. Bowman says: "When the presence of mercury is suspected in the viscera or other tissues of the body, the part intended for examination should be first cut into thin slices and then heated with hydrochloric acid and chlorate of potash, by which means any mercury that may be present will be converted into the bichlorid, and thus brought into a state of solution." This method will detect mercury, but not the elements with which it has been combined. The microscope should first be used. Brande and Taylor[6] say: "Globules of the $\frac{1}{8000}$ part of an inch in diameter may be easily recognized by the aid of a microscope. Their perfect sphericity, their silvery whiteness by reflected and complete opacity by transmitted light at once identify them as metallic mercury."

The occasional tonic influence of the metal would follow wherever glandular obstruction was superinducing diminution of the red blood corpuscles. Mercury is not a tonic; but as it increases secretion, removes obstructions and sets the corpuscular manufactories in order, as it does the biliary, it induces tonicity. But mercury also causes anemia, and this might be expected from persistence in its use, when occlusive powers, in closing the minute passages and tubular structures which, in medicinal quantities, removed preëxisting obstructions, are remembered.

Mercury in large doses diminishes red blood corpuscles, produces anemia, emaciation, ulceration, febrile symptoms, with a peculiar "jerking, thready" pulse. Obviously a salutary effect upon the glandular system, wrought by small doses, becomes pernicious by overdoses, and hematosis is seriously disturbed by vascular stasis induced by mercurial plugging of the arterioles and venules. Any irritation causing hepatic and splenic function perversion is certainly followed by hemic degeneration, and the pulse characterizing hydrargyria is, in my opinion, due to the irregular but frequent propulsion of blood by *vis a tergo* clearing of the lesser vessels where the metallic globules had for awhile backed up the current till forcibly overcome. This leads to the consideration of the nervous phenomena among its toxic effects. Mercury produces ulceration, neuralgia,

[4] Ziemssen's Cyclopedia, p. 615.
[5] On Poisons, p. 389.
[6] Chemistry, p. 491.

paralysis agitans, epilepsy, often melancholia, all of which can be produced by thrombus, embolus, passive or active cerebral or spinal congestion, or resultant anemia directly wrought in the way mentioned.

Take any treatise on nervous diseases, and wherever the words clot, thrombus and embolus occur, substitute mercurial accumulation, and the cause, in my opinion, is fully explained. Accumulation in the terminal twigs of the cerebral cortical arteries would induce paralysis, paresis, softenings, tremors, hemiopia, amblyopia, etc., according to location, and whether the basilar or carotid supply contained the larger quantity of mercury. Should the middle cerebral artery be the meeting place of the molecules, according to subsequent arrival of the metal thence, aphasia, hemiplegia or anesthesia supervene, singly or together, depending upon whether the gyrus operculum, insula, optic thalamus, corpus striatum, crus or internal capsule had become congested or deprived of blood by this interference.

Bumstead[7] relates a case of epilepsy as due to syphilis neurosis, which can be better accounted for as mercurialization. The patient had been subjected to a long course of mercury, and manifested neuropsychoses quite compatible with the supposition that the mercury was their cause. Bumstead gave more mercury with iodid of potassium and was gratified with immediate benefit. The iodid alone would have been the better remedy, as iodin unites directly with mercury to form mercurous iodid. That mercuric iodid is not formed, is evident, from absence of the physiologic effects of this active compound. The less soluble mercurous iodid is carried back into the circulation from the bony or vascular recesses in which the iodin united with the mercury, and decomposing, leaves the mercury to reproduce the same phenomena as when first ingested, with the advantage that the excretory channels have a better chance to eliminate the mercury while circulating than when lying dormant in inaccessible places. This explains why the iodids re-salivate the mercurialized.

Finding the metallic mercury "in every conceivable tissue and fluid of the body" warrants the supposition that diabetes, vomiting, gastric and pulmonary irritation following hydrargic exhibition are owing to nerve-center irritation, mechanical and direct, in the floor of the fourth ventricle, or to interference with its blood supply. At this stage an augmentation of the salivary flow by irritation of the chorda tympani nerve might also be expected, and this may be among the initiatory sialagogic causes. This irritation is exerted upon the nerve-centers by the heavy globules of the metal, exactly as serous or purulent accumulations are mechanically productive of nervous and mental derangements, or that mercurial interference with the circulation thereabouts would be followed by such neuroses.

The elimination of mercury from the system seems to be principally through the kidneys; but gold rings, brooches, necklaces, in contact with the person, will become covered with mercury films during a course of hydrargyric treatment. Consistently with its vaporizable tendency increasing with heat elevation, warm baths help its passage through the sudoriparous channels, and it is well-known that nearer the tropics greater immunity is enjoyed from the effects of large doses. Indeed, the therapeutic dose could be regulated by geographic isothermal lines. The Hot Springs, Arkansas, physicians attribute much of the success in specific ailment treatment there to the climate, which admits of larger doses of the drug. Now, if we take into account the climate and abundance of hot water in that locality, and reasoning that elimination of both mercurials and the specific poison, the evolution of which they assist, is thus greatly facilitated, we have a key to many of the cures effected there, and also to the reappearance of the disorder among those apparently cured who return north, where climate influence and failure to keep up the hygienic routine, so convenient at the Hot Springs, had closed the excretory passages upon abated, but still existing, disease.

As to the so-called "specific" reputation of mercury in syphilis treatment, and its modus operandi, I will not enlarge upon probabilities until syphilitic pathology is better understood. As the virus has a tendency to centralize upon and destroy certain areas, it seems likely that the metal may, by attacking such weakened points, not only break them down, but prevent the static degeneration necessary for recuperative processes. This, with the antagonism the metal has for occlusion anywhere except what it induces itself in great doses, suffices as a tentative view until the cause of the disease and its cure can be demonstrated. Syphilis may not manifest itself if sufficient globules are chasing it from forming nuclei; but where the fluids of the body are saturated with syphilitic points enough to produce tertiary symptoms, how futile must be any attempt to restore health by any doses of mercury. The disease itself is depleting the system at this stage, mercury but adds to the trouble, having more carious and degenerated spots upon which to work. At this period both syphilis and mercury will fraternize against the body as against a common enemy. Tonics might arrest the cachexia so induced, and in addition the iodids known to act both upon this disease and mercury should be given.

The article on the toxic effects of mercury in Ziemssen's Cyclopedia contains several mistakes as to the chemic and therapeutic properties of the metal, among which are noticeable the statement that hydrochloric acid acts upon mercury, and that calomel always salivates young children.

"Fürbringer,[8] of Jena, has made a large number of hypodermic injections of metallic mercury, and states that at the time of the injection they are well borne, but within twenty-four hours inflammatory symptoms set in and frequently result in abscess. If mercury be simply injected and not divided by subsequent rubbing, it can not be found in the urine, but has been obtained as unreduced metal from under the skin at the end of a year and a half. However administered, a slow improvement of the syphilitic symptoms takes place. Metallic mercury is best borne when given in emulsion (Hg. 2.00, mucilage of acacia and glycerin āā 10.00); one or two injections per week should be made. Fürbringer[9] believes that the treatment of syphilis by mercurial emulsion injections should be reserved for cases in which inunctions and internal treatment fail, or in which it is not advisable to make frequent injections." I do not believe this method has a particle of advantage over mercurial inunctions well rubbed in. It is cited merely to show the identity of the results of mercurialization, how-

[7] Venereal Diseases.

[8] Archiv für klinische Medicin.

[9] St. Petersburg med. Wochenschrift.

ever administered, and the fact that the mercury was not changed after a year and a half contact with subcutaneous tissue. The reason it was not fully absorbed was that division had not been effected between the particles of the mass.

Dr. F. N. Otis[10] assumes syphilitic inoculation to consist of contact of a degenerate ameboid corpuscle, or disease germ, with the healthy human white blood corpuscle. The lymph spaces and channels convey this poison, multiplied in its course, to the general blood current. He cites Bäumler[11] as virtually supporting the view that the characteristic feature of the active syphilitic cell is the possession of ability to set up in other cells through contact the same disposition to rapid proliferation. These cells *obstruct* tissues and undergo degeneration and elimination. Otis demonstrates that the syphilitic tubercle in common with all syphilitic sequelæ is *a deposit of arrested normal material*. He agrees with Bäumler and Wagner, that "the favorite seats of these accumulations are in the subcutaneous cellular tissue, the skin, in and upon the bones, the liver, the testicles, brain, kidneys, and, especially in children, in the lungs. They occur as infiltrations of microscopic size scattered through the parenchyma of an organ." The causes of the accumulations, Otis claims, are the "*interferences with the lymphatic circulation*, the natural channels through which, according to Rindfleisch, the nutritive material exuded into the tissues in excess of the necessities of growth and repair is returned to the general circulation. *Luxurious new formations, catarrhs and secretions of all kinds, must be produced when the lymph conveyance is hindered.*" Rindfleisch says: "We will find this position in pathology very frequently confirmed." Dr. Otis emphasizes this matter of "*obstruction of lymphatic vessels*," and *hindrances to the lymph conveyance*," throughout his lectures, by italicizing as above.

Notwithstanding its aplastic properties, surgeons employ some mercurial before an operation, where the subject is syphilitic and there is liklihood of the disease complicating or retarding cicatricial growth. From the mechanical standpoint it would seem that they in such cases choose the lesser evil. The aplasticity of syphilis being progressive and destructive, while that of mercury abates, when the cause is withheld, or is even preferable to the fibrinous degeneration of syphilis. The percentage of fibrin is reduced by the increase of the watery secretions attending glandular activity. In this way mercury would be indirectly as well as directly opposed to plasticity.

Reverting to the observation that mercury attached to itself fine particles of dust, which were with difficulty separated therefrom, the behavior of the metallic globules in the physiologic channels may be justifiably compared to that of phagocytes. If a microorganism is eventually established as the cause of syphilis the antagonism of mercury for the disease may be found not only in its assisting elimination generally, but through phagocytic action of the globules in enveloping the morbific organism, as the wandering cells of the circulation are known to load themselves with bacteria, micrococci, etc. In this manner the adjacent tissues would be kept from infection and the globules of mercury could carry away, through emunctories generally, the microscopic cause of syphilis.

[10] Physiological Pathology of Syphilis.
[11] Ziemssen's Cyclopedia.

The therapeutic action of mercury is in the main mechanical. As water enters and issues from hydrants unchanged so mercury enters the body and leaves it plainly as mercury, and yet speculation has been rife as to some undemonstrable chemic change having occurred in transit, notwithstanding that the bodies of mercurialized animals have been repeatedly opened and mercury found in the various organs en route toward excretion or dormant in tissues. Salivation occurs through accumulation of the metal in the terminals of the dental arteries, a condition favored by the bony coverings of these arteries and their relationship with the carotids from which the globules pour over, to gravitate to the most dependent portions of the jaw; accumulation in the cancellated tissue, gums and salivary glands would fully account for ptyalism, the earliest effects being manifest in the lower incisors, those most apt, from their position, to be affected. Fournier observed that "mercurial ulcerations are situated always on the edges of the tongue, and on the side in which the person has been accustomed to lie when sleeping," further indicating gravitating tendency of the globules.

I shall now proceed to prove that *all the mercuric and mercurous preparations decompose in the body into mercury globules, the sizes of which determine much of their effects.*

Blue Mass.—Under a three-quarter-inch objective, magnifying seventy diameters, I placed the web of a frog's foot, and acquainted myself as thoroughly as possible with the peculiarities of its blood vessels, pigment granules, appearances by reflected and transmitted light, and then gave the frog five grains of blue mass. Twenty-four hours afterward I examined the frog, and found little globules of mercury mingled with the mucus excreted from its skin. Brushing these off, I placed its feet again under the same lens, and found blood vessels choked with metallic mercury; aneurysmal and varicose pouches were distended with mercury, and a great number of the so-called pigment granules had changed to a yellow metallic lustre; these spots reflected the light as would mercury, when examined by direct rays. As many as twenty of these lacunæ, or star-shaped bodies could be counted between two toes, and altogether there were about a hundred on each foot. The close resemblance between the lacunæ thus injected, and Stricker's description of the lymphatic sacs in the course of the lymphatics of the frog, led me to believe, at Dr. Lester Curtis's suggestion, that I had observed mercury in the lymphatic channels of the frog. Two little tubules choked with mercury presented a singular phenomenon. Under the power used the tubes appeared blind, but a little globule of unmistakable mercury lay upon the surface of the web at the outer end of one of the tubes. Watching this globule intently for ten minutes, it suddenly increased in size, and the tube collapsed, having emptied its mercurial contents outward. The globule thus formed was twice as large as the characteristic blue mass globule, and was easily removed from the web by a camel's-hair pencil. The other similar tube was more curved, and at its outer end had two such globules, both of which increased slowly in size, and in half an hour had grown very large at the expense of the tubular contents, the tube disappearing as did the first mentioned. Nowhere could I see anything like foreign particles *circulating* in the blood. The white and red blood corpuscles were distinctly visible, but in one capillary I found a small

dark particle gradually accumulatiug similar particles near it; these I suspected were minute mercury globules; they accumulated against the current, and the blood passed around them freely; suddenly the down stream end of the mass broke away and apparently washed away in the blood out of sight. This was repeated several time while the mass, in this way, was proceeding up stream. While exchanging objectives for a higher power, the capillary cleared up. In one vein I observed plainly a large globule of mercury lying motionless, while the blood corpuscles beat against it with as little effect as water would have against a great stone in a brook; the corpuscles changed positions to pass it in the vessel, but slid by as rapidly as ever. Some of the exuded mercury globules on the web enabled me to obtain good comparative measurements. Six of these metallic spheres lay on the surface, just over one of the smallest capillaries. The six together measured the diameter of the capillary, and could easily have passed through this blood vessel abreast.

I repeated the experiment on a smaller frog by anointing the chin, axillæ, and thorax with Squibb's oleate of mercury, with the same result, only the large-sized globules were not so numerous. To a third (large-sized) frog I gave ten grains of blue mass, and as much blue ointment. I kept him in a glass jar, to be sure that he did not eject the pellets, and in this case, twenty-four hours after, found the lymphatic sacs engorged, but blood circulating undisturbed. In all the frogs so treated, where unavoidable lacerations of their feet had occurred in manipulating, there oozed from the torn edges minute globules of mercury. The last frog shed his skin in three days after the dose, but otherwise none of them underwent any apparent change in health or vigor. The skin, I think, must have afforded the main means of exit for the metal. There is not a fragment, however small, of this discarded cuticle which did not exhibit plainly the metallic globules attached to it in great numbers; many hundred microscopic slides might be mounted with the skin from this frog alone, and every slide will reveal fifty or more globules. In the dissecting room of Bennett Eclectic College of Chicago, a cadaver was exhibited to the students, the skin of which was so covered with mercury that an ordinary pocket magnifier revealed the countless globules. Dissecting the frog last mentioned, I found the stomach coated with the globules, but ten days having elapsed since the dose, no mercury was found between the intestines and the skin except in the dermis, but very probably in the liver. This organ was apparently choked with sacculations of an opaque substance, which at first Mr. E. B. Stuart and I took to be pigment granules, but after careful slicing by the microtome some sections one two-hundredths of an inch thick, and the opacity of those spots persisting, after careful consideration we regarded these opaque spots as aggregations of metallic mercury, held in the hepatic channels. In reflected light the unmistakable glint from mercury globules could be caught.

Hoping to discover the course of the metal through the frog's body, I administered a gram (15.4 grs.) of finely divided mercury, in albumin, to a male frog. In five hours globules appeared on its back. Dissection showed that the intestines, renal and portal circulation, heart, kidneys, and even the testes, contained numerous globules of mercury, and the lymphatic passages were beautifully injected with globules much more finely divided. Apparently the lymph channels had chosen the lesser particles, or the metal had undergone further division in absorption into these passages. Biologists can profit by repeating my experiments and observe hitherto invisible animal channels which the passage of mercury demonstrates with even low magnifying powers.

(To be continued.)

DIPHTHERIA.

Read before the Harrisburg Academy of Medicine, Dec. 8, 1865.

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Diphtheria is an acute infectious disease, which, primarily, affects the mucous membrane of the pharynx, larynx, or air-passages; and, secondarily, as result of the absorption of the toxic element from the seat of infection, a general systemic or constitutional disturbance arises. The history of this disease dates back over many centuries, apparently beyond the time of Hippocrates, and all nations seem to have been scourged with its various epidemics at one time or other. It is notable that various theories were advanced to explain its causation, but it was only during the latter part of the present century, when with the improved teaching of the microscope and the advanced detail of laboratory technique, that the real cause was discovered and identified, namely, the Loeffler bacillus.

INCUBATION.

The period of incubation is the time which elapses from the deposit of the bacillus or germ on the mucous membrane, until some morbid phenomenon is manifested, and varies according to the susceptibility of the patient from one to several days.

SYMPTOMS AND COURSE.

The first appearance of the disease is generally on the most prominent part, as the tonsil, though it may be on the soft palate, the uvula, the posterior wall of the pharynx, the posterior nares, the nasal mucous membrane, or on any part of the mucous membrane exposed to the air. It is characterized by a false membrane or exudate, which varies in color from a grayish white to a yellowish brown or black. The affected part becomes red, swollen and tender, and rapidly becomes septic, and an offensive or fetid odor is emitted which gives rise to the name of "putrid sore throat" as a synonym for this disease. The membrane, at the start of the invasion, consists of simply a small, thin, whitish speck, which if discerned early may be speedily aborted by prompt local treatment and antiseptic precautions; but if permitted to progress the membrane becomes thicker, denser and darker, and spreads in all directions and gives rise to new areas of infection. The membrane has generally a well-defined margin, beyond which extends a considerable area of redness and the adjacent parts are much swollen and inflamed. The membrane adheres tightly and when removed it leaves a slightly depressed raw surface, or wound, over which the membrane rapidly reforms as large or larger than before, unless reparation sets in at this period. In some cases the erosion is quite deep and the mucous membrane seems to be in a state of necrosis or gangrene. The various glands of the neck, the lymphatic and salivary glands become much swollen, tender and

inflamed. There occur at times various extensions of the disease into the nares, the Eustachian tube, the lachrymal duct, the adjoining mucous surfaces, as of the cheeks, palate and alveoli, and on various denuded external parts. But by far the most serious extension is into the larynx, trachea and bronchi, giving rise to what is called diphtheritic croup. This usually occurs within the first week of the disease. Here we have the peculiar hoarse and croupy cough, difficult stridulous respiration, husky voice, dyspnea, and in advanced cases marked retraction of the larynx on inspiration. In some cases the infection starts in the larynx and in a day or two a patch of membrane is discovered in the pharynx, having apparently spread upward. Even no membrane may appear at all by ordinary inspection and thus leave in doubt whether really diphtheria exists, as in some cases of croup.

The secondary or constitutional disturbance is the result of the septic inflammation and the absorption of the toxin elaborated by the bacilli. In the mildest form there is a general indisposition to action, malaise, sometimes chilliness, and a temperature varying from 100 to 103 degrees F., which gradually subsides. In the severer forms these symptoms are magnified, and later when the system is overcome with the toxemia, great depression of the vital forces sets in and the patient has the appearance of being apathetic or indifferent to his fate. In the malignant form the vital forces are overcome by the sepsis from the onset of the attack and the above symptoms may or may not be present; the temperature is not high and soon becomes subnormal, the pulse is rapid, thready and quite weak, and the patient may even die before or within a short time of the discovery of the disease. Albuminuria is a pretty constant feature in most cases from the beginning, at least occurring within the first three days, and gradually subsiding as convalescence sets in.

The main sequel of diphtheria is paralysis of various muscles. This comes on gradually and generally about the second week of convalescence. The muscles most frequently attacked are those in proximity to the seat of infection, namely, those of the soft palate, pharynx and larynx, though various others as of the eyes, the trunk and the extremities, also become affected, and there is also for a time much general muscular weakness and inability of the patient to adapt himself to his usual exercise.

Diagnosis.—The diagnostic symptoms of diphtheria are few and in a general way dependence is largely placed on inspection, which, when a case is somewhat advanced and fairly well marked, is pretty reliable, and if the case occurs during an epidemic or in proximity to another case, it becomes the more certain, though it must be remembered that there are also some other processes which form membranes and are not diphtheria. In the milder forms, or very early in the severer forms, where but little or no membrane exists it is more difficult to distingush from some other inflammatory processes as follicular tonsillitis and catarrhal inflammations of the pharynx and tonsils with ulceration. In the ulcerative process the covering is generally a secretion and readily removed and seldom gives rise to much glandular infiltration, the fever is more continuous, the fetid odor is generally absent, and convalescence begins in a much shorter time without the usual depression. The exudation of follicular tonsillitis is not so concrete or uniform as a diphtheritic patch, and it generally has the appearance of having just oozed out of the follicles. Advantage can also be taken of the albumin test, as albuminuria is present early and pretty constantly in most cases of diphtheria and absent in the ordinary inflammatory affections. But for absolute certainty in any case, whether with or without membrane, the bacteriologic or culture test should be employed. In some cases of scarlatina it is difficult to differentiate, but here we generally have the peculiar eruption, the scarlet palate and fauces and later the strawberry tongue. The temperature is also generally higher and remains so longer than in diphtheria.

Prognosis.—The prognosis varies in different epidemics and at different times. There seems also to be a singularly higher death rate in some families than in others. In some epidemics the death rate has been as low as 10 to 15 per cent. and in some it has exceeded 50 per cent. It may be said safely that the diphtheria motality has been about 40 per cent. In cases of ordinary severity, when seen early and where proper local treatment can be enforced, the prognosis is much more favorable than in the opposite state of things. Where the cases are severe and septicemia has advanced considerably before medical aid is summoned the prognosis is much less favorable, and where advanced cases have been neglected until marked depression has set in and where the patient is intractable to the treatment little is to be expected.

LOCAL TREATMENT.

In the treatment of diphtheria it is all important to keep in view the fact that it is caused by a specific germ which obtains effectual lodgment on the mucous membrane and in some manner sets up an inflammatory process, and a breaking down or necrosis of the affected part results; and further, that it is essentially a septic disease and by absorption of the septic element it produces grave local inflammations and most serious constitutional disturbances. The patient should be removed to an upper room where good ventilation and a proper temperature can be maintained. Having then here an abraded or raw surface, a wound on which is deposited a septic or toxic material, it becomes absolutely necessary to employ such means as will cleanse the affected part and render it aseptic. Cleanliness and antisepsis are the watchwords in the local treatment. The false membrane must be removed and the wound must be treated with an antiseptic and bactericide so as to render it unsuitable for the bacilli to thrive, as well as to prevent septic absorption and also to promote healing and restoration of the affected part. To remove the membrane I have found the peroxid of hydrogen a very effectual remedy. My mode of using it is thus: Some absorbent cotton is attached to a holder which is then dipped into the peroxid of hydrogen, which has been poured into a receptacle, and then gently applied to the false membrane with a rotary movement and slight friction, if the same is necessary to gradually accomplish its removal. Frequent changes of the cotton and the hydrogen are deemed advisable and some patience and time and repeated applications are necessary to obtain the best results. Thus the entire false membrane it removed by gradual and repeated applications. I then apply in similar manner the following lotion:

℞.

Tr. ferri chloridi	℥	i	30
Alcohol vel listerin	℥	i	30
Hydrarg. bichloridi	grs.	ii	12
Menthol	℈	i	4

Being about 1-5 of 1 per cent. mercuric chlorid lotion, or 1 in 500 in strength, it may be applied thoroughly several times successively if the patient will endure it, though sometimes, as in infants, it is better to dilute it to half strength. In children there will be some struggling, and at times vomiting occurs, but the good results more than compensate for its unpleasantness. The patient, if able, is urged to gargle freely and frequently with the same lotion diluted to one-fourth or one-sixth this strength, and also previously with the peroxid of hydrogen diluted to one-half or one-fourth its strength. The attendant is urged to apply the hydrogen followed with the mercuric lotion every two hours. I have had excellent results with this local treatment and where it can be employed early and thoroughly good results can always be realized. I have seen the most severe cases, with the exudate or membrane covering the entire pharynx, improve the second day and gradually progress to recovery. Various other agents have also been used, as pepsin, trypsin, carbolic acid, hydrochloric acid, argenti nitras, cupri sulphas, etc., to remove the exudate. The chief object, however, in local treatment is to cleanse the part and render it aseptic. Cleanliness must be maintained all the time. The most danger lies in the sputa and mucous secretions and these should be disposed of in an antiseptic manner so as to prevent further infection. The hydrogen can be used to advantage at times by the spray as in the nasal and laryngeal forms. Here a dilution to 50 per cent. of its strength is preferable. I have also used listerin with very marked advantage by syringing, in full strength, in the nasal form. In this form upon the slightest appearance frequent syringing or spraying should be employed with the peroxid of hydrogen, the mercuric lotion diluted to one-sixth its strength, or listerin full strength or diluted one-half.

SYSTEMIC TREATMENT.

The constitutional or systemic treatment should be based largely on the existing indication, keeping in mind at all times the septic or toxemic nature of the disease, and its tendency to destroy life by gradual devitalization or lowering of the vital forces. Thus there may exist early good reason for the use of tonics, stimulants and reconstructive agents, as well as the most nourishing and persistent diet possible. If the fever is excessive such remedies as will alleviate, though not permanently depress the system, should be used. And if the patient manifest much weakness stimulants should be employed early and continuously as long as indicated. There is, perhaps, no remedy more valuable than the tr. ferri chloridi, which can be given freely, though well diluted, say in doses of 20 to 30 minims every hour or two to adults, and to children in proportion. The mercuric chlorid is also a most valuable internal remedy in doses of one-fiftieth to one-hundredth gr. every hour, well diluted, and I have frequently given the two in combination with excellent results. The salicylates, hydrochloric acid, cinchona preparations and various other remedies have also been employed by some. It is necessary to institute active and at times enforced nutrition from the start of the disease, and much of the good results obtained by some practitioners is due to the enforced and persistent nourishment of their patients. Where nourishment can not be given per os it must be given per rectum, and surprising results are obtained by thus maintaining the strength until the food can again be administered in the regular way. In the laryngeal form it is well to remember that the exudate or false membrane likely exists and yet may not be perceptible, hence the propriety of the above treatment supplemented with such additional remedies as are indicated. Here the antiseptics and bactericides are best employed in the form of atomization or spray. In cases where relief is wanting, intubation and tracheotomy should be employed at a reasonably early period in order to save life. The paralyses are treated with tonics, strychnia, electricity and massage or exercise of the parts.

SERUM TREATMENT.

In addition to the above treatment, a most valuable therapeutic agent, the serum-therapy, has been introduced and pretty fairly tested. My experience with this treatment has been only in private practice, and consequently somewhat limited, but the results obtained in cases of more than ordinary severity warrant me in concluding that it is a most valuable addition to the treatment of this dreaded disease. It seems to me that when promptly employed it is capable of reducing the mortality at least 50 per cent. It is both used as a curative treatment during the course of the disease and also as a means of forestalling or immunizing, on the same principle as vaccination is employed to immunize, or prevent, or modify variola or smallpox. As a curative agent it should be employed as early in the attack as possible and at least within forty-eight hours of the onset in severe cases, and even earlier in all cases where it is possible. By its use early in an attack undoubtedly good results will be had, but where used late in the attack, or when septicemia is considerably advanced and cell destruction has set in and prostration is grave, little can be expected of this remedy. It seems to be of marked utility also in the laryngeal or croupous form, and it is probable that its merits will be largely determined from results obtained in this form of the disease. I have had a very favorable result in a pharyngo-laryngeal attack of the severest type, in which on the second day of the attack the entire pharynx was covered with a black, tough membrane extending into the larynx and causing a most distressing attack of croup. Here the serum was employed about the thirty-sixth hour of attack of the disease, and about the twenty-fourth hour of the croup, and within twelve hours slight improvement in the respiration was noticeable, when another application was made and the case gradually progressed to a final recovery though the paralysis was extreme and very persistent.

Prophylaxis.—In the prevention of this disease it should be remembered that it is highly contagious, though it is regarded to be so mostly at close range and not at a great distance, like measles and various other contagious diseases. The greatest danger arises from direct contact with the sputa, the membrane or secretions. Complete isolation should be enforced and the persons exposed to the contagion should be quarantined, or separated from healthy or unexposed persons until danger of contagion is passed. Very much can also be done by enforcing hygienic regulations about the premises and localities as it is not unusual to trace sporadic cases to bad drainage and imperfect sewerage. It is also well to employ antiseptics and disinfectants about the premises and the probable source of the contagion. It is also well to have persons about the infected premises,

and especially those coming in contact with the affected parties, to gargle freely with a mercuric lotion of the strength of 1 in 4,000 to 5,000, and also to disinfect the clothing. It is also necessary, after convalescence is complete, to rigidly disinfect the premises, as the contagion may linger a long time, and thus be a menace to healthy persons.

RUPTURE OF SAC AND DEATH OF FETUS IN ABDOMINAL PREGNANCY AT FULL TERM. IMMEDIATE OPERATION WITH RECOVERY.

BY J. B. EAGLESON, M.D.

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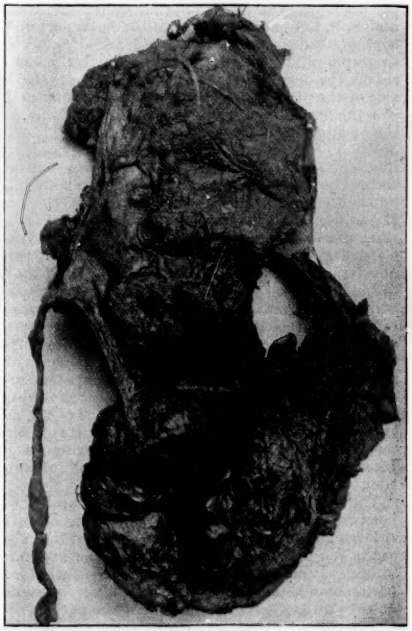
The following case of abdominal pregnancy is reported as it presents some points of interest which are different from the few cases of this kind previously recorded.

Mrs. B. is 36 years of age, and American born from German parentage. She is of slender build and rather under medium height. She was married at 18 and has a daughter aged 17. At the birth of the daughter both cervix and perineum were severely lacerated, causing her considerable trouble until they were operated on some five years later. After the repair of the laceration she enjoyed excellent health, with regular menstruation, until the beginning of this pregnancy. She menstruated last on March 21, 1894, but as the flow at that time was of short duration and very scanty, it is very probable that the pregnancy really began one month earlier. With the exception of the morning sickness her health continued quite good until May 13, when she had severe uterine and abdominal pains accompanied by profuse hemorrhage, which continued for four or five days. During this flow a membranous cast of the uterus was expelled and the attending physician thought that she had aborted, and that the fetus had escaped notice. At this time there was quite well marked tenderness over the right ovarian region. She improved in general health and was quite free from pains for three weeks, when they returned on the right side, being more acute in character than during the previous attack, but unaccompanied by hemo rrhage. The temperature was but slightly elevated. A bimanual examination revealed an enlargement to the right of the uterus, which was variously diagnosed as a cyst, an hematocele and a malignant growth. The severe symptoms subsided after a few days, but slight attacks of pain returned at frequent intervals during the summer. About the middle of July she began to feel what she thought to be fetal motion, and the husband, who is a retired physician, concluded that they must have been mistaken about the occurrence of the abortion in May. Later on he was able to feel distinct movements of the child, and could at times make out the extremities through the thin abdominal wall. He also felt confident of having heard the fetal heart on one occasion. She was fairly comfortable, with the exception of occasional attacks of pain during the latter part of summer and autumn. Some tenderness remained on the right side and during the last few months she was not able to sleep on that side. The child always occupied a position on the extreme right and low down in the abdominal cavity.

I was first called to see her on the afternoon of Nov. 11, 1894, and found her suffering from quite sharp pains, which had been gradually increasing for several days. An examination revealed a small cervix situated high up against the sacrum almost out of reach of the finger, and the child was in a transverse position to the right of the median line. As the os had not begun to dilate I concluded that the pains were probably false, and gave her a ¼ grain of sulphate of morphin hypodermically in order to give her some rest, she having slept but little during the previous night, and advised its repetition sufficiently often to keep the pains in check, thinking that the position might right itself if she went to full term, since I had been informed that she was but about eight months pregnant at this time. The husband stated that he had found some albumin in the urine the day before, and I



Sac of placenta showing rupture through which child was extracted.

found a sample sent to me later in the evening to be very dark colored and to contain about 50 per cent. of albumin by volume. The feet and legs were considerably swollen, especially the left one. Milk diet and Basham's mixture were advised. I did not see her again until the next evening. She slept some during the night and had been comparatively free from pain during the day. The patient remarked that she had not felt motion for several days and feared that she would have a stillbirth. While I was examining for the fetal heart with the stethoscope she went into a very hard convulsion, which was checked by chloroform inhalation, and while she was under the anesthetic I again made a careful examination, but did not succeed in finding the fetal heart.

Realizing that the case was a serious one, a consultant was sent for, but before his arrival she had a second convulsion, and then a third during his examination. At this time the abdomen was very tender and quite tympanitic. The temperature was 101.2 with a pulse of small volume at 112. It was decided that rapid dilatation and immediate delivery was imperative. Under complete anesthesia, my hand was introduced into the vagina and the cervix dilated, but much to my surprise I found my finger in the cavity of an empty uterus scarcely above normal size. It was now evident that we had to deal with an extra-uterine fetation. Owing to the uremic convulsions and commencing peritonitis it was decided to operate at once and she was removed to Providence Hospital, where we operated two hours later. I made a median incision and came down upon a large placental mass just above the bladder. The sac was not adherent to the abdominal wall, but had ruptured and the fluid part of the contents had escaped into the abdominal cavity setting up a mild general peritonitis. After a careful search the opening in the sac was found on the left side of the placenta. On introducing the fingers into this the feet were at once reached, and by enlarging the opening the child was extracted through it. The position of the child was on the patient's right, with its right side toward the right, the legs extended across the abdomen and head turned extremely to the left and pushed up under the right lobe of the liver. It had been dead several days as the cord was somewhat shriveled and the skin was macerated. It was a well-formed female child weighing six and three-quarters pounds. There were no adhesions of the sac to the abdominal wall and but few to the intestines, which with two or three exceptions were easily peeled off without the use of ligatures. The placenta was quite firmly attached to the top and posterior surface of the uterus, and to the right broad ligament. But few vessels had to be tied. The principal nutrient vessel of the placenta, which was almost the size of a lead pencil, came from the under surface of the mesentery of the ileum. But a small quantity of blood was lost during the operation. The peritoneal surfaces presented evidences of commencing inflammation.

The abdominal cavity was thoroughly washed with hot boiled water until it came away perfectly clear. A large glass tube was inserted down into the cul-de-sac in the center of a gauze drain. The abdominal wound was closed by kangaroo tendon sutures for the peritoneum and fascia, with silkworm gut for the deep sutures through entire thickness of the parietes.

The patient was stimulated by rectal enemas of hot beef tea and whisky, with digitalin and strichnia, and by morning she had rallied from the shock nicely. The glass tube was removed on the second day and the gauze drain the fourth day, after which the wound united by first intention and the recovery was uninterrupted. The day following the operation the urine contained 75 per cent of albumin by volume, but this gradually diminished until there is now but a slight trace present. There were no more uremic convulsions after the operation.

For the Prevention of Blindness in Pennsylvania. In order to prevent blindness, a law was passed by the Legislature of Pennsylvania in 1895, which imposes a duty upon all midwives, nurses or other persons having the care of infants, and also upon the health officer, and fixing a penalty for neglect thereof.

ELEVEN YEARS OBSERVATION IN THE USE OF CREASOTE, IN THE TREATMENT OF TUBERCLE OF THE LUNGS.

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For eleven years I have had a greater or less number of patients constantly under observation with the creasote treatment, and feeling the importance of the subject and the general interest taken in this disease, I have been led to report my experience. A large majority of patients have been seamen of the merchant marine. The conditions noted cover all stages of the disease.

The places of observation were South Carolina, Texas, different stations on the Great Lakes, a few cases at Evansville and St. Louis and the remainder at Port Townsend, Washington.

A majority of the cases were not diagnosticated by bacteriologic examination as physical methods easily revealed the condition. All cases of "chronic pneumonic phthisis," "chronic pneumonia," etc., are excluded.

Pure beechwood creasote was given throughout. Dosage ranging from one to seventy minims, has been tried. Some cases have been treated to a termination with a few minims given constantly and without variation. Others were given gradually increasing doses until the limit of toleration was reached, when the drug was recommenced at the small dose to be again carried to the limit of toleration. Still other cases were given gradually increasing doses to the limit of toleration then decreased to the point of toleration and kept there to the end of the treatment. Some of the cases had other treatment in conjunction, though the large majority were treated exclusively with creasote.

The serious objection to creasote is the unpleasant, sickening and burning sensation which it causes in the stomach. I have used the pure creasote made into emulsions, mixtures, pills, etc., none of which were at all satisfactory. The best method that I have found is to nearly fill a gelatin capsule with pulverized acacia, drop in a few minims of the creasote and take at once. If the dose is to be large this is a very bothersome way to give the drug. I have prescribed carbonate of creasote to a few private patients but the period of observation has been short and unsatisfactory; however, I think this a desirable way to give the drug. I have also given the drug by inunction but not with satisfaction. Patients show greater and quicker improvement from the treatment in a warm dry climate and the dosage is smaller.

If there be tuberculous infection of the kidneys, the general condition will be aggravated by giving the drug in any dose. My patients with high fever did not do well, probably on account of irritable stomach. Valvular heart disease does not interfere with the results of the treatment. Tubercular infection of the intestines and mesenteric glands is benefited by the treatment, though the point of toleration is lower. I have had no experience with tubercular meningitis. Tuberculosis of the bones and joints received no benefit. I have had no experience with the drug in the treatment of children. The age of the adult does not seem to make any difference. The treatment may bring on complications such as

severe headache, injection of conjunctiva, lachrymation, the sensation of constriction of the chest which soon passes off, bloody urine, indicanuria, transitory glycosuria, increase of the daily amount of urine, nervousness and disturbed slumber, a rash, and last and most serious and which is nearly always the final and fatal complication, pneumonia. It is especially dangerous to give the drug when there are kidney complications. When there is high temperature it does no good. With the complication of pneumonia it is absolutely dangerous. Pulmonary hemorrhage is rapidly improved. Prolonged administration causes severe and harmful anemia. If the test for blood or indican in the urine shows either to be present the drug should be discontinued at once. The treatment is of little avail when there is sapremia due to absorption from large cavities that have become infected with pyogenic bacteria. Small dosage with creasote is not beneficial; the only positive results obtained have been from a very liberal administration. Hopefulness led me to think many of my cases cured, but in nearly all, the disease has recurred. It has been impossible to follow all of these cases though a few report to me at stated intervals. I doubt that a single case has thus been cured. In comparison with other drug treatment creasote has given me the only satisfaction, however scant, obtained.

Large dosage with creasote given constantly at the point of toleration is dangerous for the following reasons: After continued administration for a great length of time, the patient becomes very anemic, from which trouble he rarely recovers; secondary infection of healthy lung tissue takes place from detached necrotic tissue producing a rapidly fatal pneumonia. Many of my cases on the large dosage have improved very rapidly and were thought to be nearly well. They have been exhibited to medical friends with much enthusiasm with the hopefulness that the cure would be permanent. Many of these patients would rapidly succumb to pneumonia probably a short time afterward. For a long time I thought the pneumonia to be only an accidental complication but I now feel convinced that the treatment is the cause, due to secondary infection with necrotic tissue as mentioned above. Finally I must state that I believe that no well marked case of tubercle of the lungs recovers with the creasote or any other drug treatment without the very best and most favorable climatic conditions coexisting with the treatment.

ON THE DIAGNOSIS OF GASTRIC ULCER.

Read before the Chicago Medical Society, Oct. 7, 1895.

BY L. HARRISON METTLER, A.M., M.D.
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A disease that causes no less than 5 per cent. of all deaths and that can only be "approximately" diagnosed in the absence of hematemesis is still deserving of the closest study. The following case is presented as a text for a discussion upon the hitherto known signs of gastric ulcer.

N. H., aged 27, first came under my observation Nov. 29, 1893, through the kindness of Drs. Lyman and Ward, after a profuse hematemesis. Neither the family history of the young woman nor that of her early life presented anything of special note. Having somewhat of a neurotic type of constitution, she nevertheless has always borne the appearance of fairly good health, being well nourished and well developed. She has always been of a studious turn of mind and devoted much time to music and literature. She is fond of outdoor sports and is an expert bicyclist. Except for a slight degree of paleness, one would never look upon her as in any way an invalid. There were no pulmonary or cardiac symptoms. Menstruation began at 15 and has always been regular, painless and scanty. Amenorrhea occurs at times. There is a tendency to constipation. About eight years ago she began to be troubled with dyspepsia. At that time Dr. Birdsall, of New York, treated her for anemia, which treatment she continued irregularly for five years. For her dyspepsia she consulted Dr. Vaughan, of Ann Arbor, quite a while ago, and he assured her then that she did not have gastric ulcer. Several physicians have diagnosed her case at various times as nervous dyspepsia and she has been almost continuously under treatment for this condition. Her appetite had always been good but she learned the necessity of being careful in the selection of her food. Near the cardiac end of the stomach she has had at times a slight gnawing or boring pain which shot through to the back and was felt near the angle of the left scapula. Sometimes after partaking of solid food the pain would become very acute and definitely localized so that she could easily cover it with a half-dollar coin. There was almost always more or less pain in the left hypochondrium, and its site never shifted anteriorly or posteriorly. Sometimes, she says, it feels as though a grape seed or other small, pointed object had gotten fast in the left side of the stomach. In the intervals between the taking of food, she feels as though the stomach were contracting or that its lining were forcibly drawing together. She suffers from occasional headaches, due probably to the anemia, but otherwise she is perfectly free from neuralgic pains. Three or four severe "fainting spells," about a year apart, have caused her considerable alarm. In them she became decidedly cyanosed and remained semi-conscious for a brief time. They always left her very weak. In one of these "spells" she fell completely dazed from off her bicycle. I can obtain no more definite history in regard to these attacks of syncope, as they occurred mostly when she was alone and closely engaged in some occupation. Their after-effects were vouched for by friends and relatives. It never occurred to her to notice the character of the stools immediately after them, as she supposed they were due probably to "biliousness" or "nervous weakness." There is a possibility that they may have been the result of small internal hemorrhages, which gave no other indication than that of mild shock. She does remember, however, that right after these spells the stools were somewhat looser than usual. She has frequent attacks of nausea, and though the appetite is good, food frequently produces a feeling of repugnance. There has never been any vomiting.

On Nov. 27, 1893, a severe hematemesis occurred, the first she had ever had. Members of the family declared it amounted to nearly two quarts of blood, probably an exaggerated estimate made in the excitement of the moment. The blood was described as very dark in color and full of small clots. This so prostrated the patient that she fell to the floor and was put to bed in a dazed condition, nauseated and completely exhausted. Menstruation began upon the following day and still more weakened her physically. The pain in the hypochondrium suddenly became much worse and was experienced most keenly on the left side and under the angle of the left shoulder blade. There was an intolerable headache. The temperature was not elevated and the pulse became subnormal. Just before the hematemesis the bowels had moved very freely, almost to the extent of diarrhea. They were noticeably dark in color. She had just been taking for her dyspepsia ten drops of dilute hydrochloric acid. Dr. Ward saw the case immediately after the hemorrhage and administered ergot, cracked ice, cold drinks and one-sixtieth of a grain of strychnia every four hours. Such was the history of the case related to me when I first saw it two days later, Nov. 29, 1893, at the urgent request of Dr. Ward, who was preparing to leave for California. I found the girl in bed, pale, with an anxious expression and complaining of the sharp burning pain in the stomach. Lying upon either side made the pain more acute. Not knowing what diagnosis had been given, I at once told the parents that, in my opinion, it was a case of gastric ulcer. Absolute quiet in bed was enjoined and all visitors positively forbidden. A drachm of milk and lime water or matzoon was allowed every hour. There was no vomiting when I saw her, so that I had no opportunity of examining the contents of the stomach and the passing of a tube to secure a sample of the gastric juice was entirely out of the question. A week later patient was still very dizzy and nauseated when she injudiciously attempted to sit up in bed. The bowels had moved twice, once normally and once after an enema. Both times they were quite normal in color. The headache continued to be dull and constant. The localized pain in the left hypochondrium did not abate but radiated

up along the left side and behind the sternum. It was also very acute posteriorly. At this time one ounce of matzoon, or milk and lime water, or a little of Leube's beef solution was taken every hour, according to the patient's taste. Three times a day she also took a drachm of the juice of pressed, slightly broiled beef, as well as one-sixtieth of a grain of strychnia. Beyond the dietary mentioned the slightest increase brought on sharp pain, nausea and a tendency to vomit.

On December 7 the strychnia was withdrawn and one drop of Fowler's solution of arsenic administered three times a day.

Up to December 20, when for the first time I permitted the patient to sit up in bed for a few minutes, there was nothing of special importance in the progress of the case. Once or twice a slight excess of nourishment came near precipitating an attack of vomiting. Pain and nausea continued but were very noticeably diminishing. Hemoglobin compound (P. D. & Co.) was added to the treatment to restore the loss caused by the hemorrhage. On December 27 the patient began to dress and recline awhile each day in a large arm chair. On Jan. 4, 1894, she commenced taking solid food in small quantities. There was no nausea now, very slight pain and only an occasional ache in the region of the cardiac end of the stomach. There was still much weakness with some shortness of breath. The strychnia was again added to the treatment. After January 7 she began to go downstairs each day and cautiously resumed her usual occupation. Convalescence was rapid and satisfactory. Carlsbad salts and ferruginous tonics terminated the special medication.

In February the patient went to Florida, spending several weeks there, greatly to her benefit, eating heartily, bathing in salt water and living an outdoor life. She returned April 3, the picture of health and having gained twenty pounds in weight. She was then quite free from all suffering. In August, 1894, she was married, and has since given birth to a healthful child. During pregnancy there was no vomiting of any consequence but considerable nausea. Occasionally now some indiscretion of diet will bring on an attack of nausea and revive the acute lancinating pain which shoots through to the back. It does not last, however, and it quickly disappears with a return to liquid or semi-solid food. There is a marked tendency to constipation, but carelessness in regard to eating precipitates a sharp attack of diarrhea. In all other respects the patient appears and feels perfectly well.

There are two kinds of ulcer of the stomach, the diagnosis of which is either impossible or unimportant. The one is the latent ulcer which runs its course without symptoms, and is recognized merely as a post-mortem curiosity; the other is the ulcer which remains latent until a sudden, rapidly fatal hemorrhage renders its diagnosis of retrospective interest only. As clinicians, the form of ulcer which concerns us most is the variety having more or less definite symptoms. Of this variety there are the *suspected* ulcers, the diagnosis of which can never be more than approximate and the *recognizable* ulcers, of which we can form a reasonably positive diagnosis.

The cardinal symptoms of gastric ulcer are, in the order of their importance, gastrorrhagia (hematemesis), pain of a peculiar sort, dyspepsia, hyperacidity and vomiting. Given all these symptoms in any one case and we may be assured that ulceration of the stomach is present. Of these five cardinal symptoms gastrorrhagia is by far the most important, for until there occurs a hemorrhage, large or small, from the stomach, the other symptoms can only lead us to a suspicion of ulcer. The variable importance attributed to these other symptoms is the ground upon which clinicians differ most in their diagnosis of Cruveilhier's malady. It is extremely desirable that more unanimity of opinion should obtain in regard to the value of these symptoms or that new ones should be discovered which would foster uniformity of diagnoses by reason of their greater exactness. These symptoms arranged in the order of their frequency are epigastric pain, vomiting, indigestion, hyperacidity and gastric hemorrhage. Constipation, anemia, chlorosis, amenorrhea, the red tongue of Niemeyer, the local hyperthermia of Peter and Hayem, the gastric contraction and dilatation of Gerhard and the associated cachexiæ are all so variable as to be of less importance as diagnostic signs than the etiologic factors of age, sex and occupation. I will consider, therefore, for a few brief moments the relative value of the cardinal symptoms of gastric ulcer, namely, the pain, indigestion, hyperacidity, vomiting and gastrorrhagia.

Everybody knows that a dull, lancinating, burning and gnawing pain, strictly localized near the epigastrium, shooting through to the back and appearing with peculiar distinctness near the angle of the left scapula, occurring at times in severe paroxysms, increased usually by food and external pressure, and more or less modified by posture is almost pathognomonic of gastric ulcer. I can not recall a case diagnosed ante-mortem as ulcer, in which pain was entirely absent. It is a marvelously uniform and correspondent symptom. Pain, however, is always an unsatisfactory indication upon which to base a diagnosis, and in gastric ulcer it would probably be one of the least valuable, were it not for its constancy. Its fixed nature and relative constancy are its preëminent characteristics. Even the steady discomfort of gastrodynia can usually be temporarily relieved by a small blister over the site, but not so the peculiar pain of gastric ulcer. I believe, therefore, that its constancy with one or two peculiar features, which it always manifests, raises it to the position of a most valuable diagnostic sign. It is very exceptional for this pain to be continuously absent throughout the entire course of the disease, and a careful study of its character ought, it seems to me, to furnish, when present, the strongest kind of a suspicion of ulcer. Occasionally the pain is modified so as to render a differentiation of ulcer from gastralgia, cancer, chronic gastric catarrh and the gastric crises of Charcot a matter of some difficulty. But if one has an opportunity to observe his case for a time, I think he will be able to determine the cause of the pain. Gastralgia is met with in chlorotic and hysteric females, is independent of the ingestion of food and is not fixed; it is not relieved by vomiting, but is often caused to vanish by external pressure; it is entirely absent in the intervals between the paroxysms and it is benefited more by electricity and general tonics than by the regulation of the diet. Other well-known symptoms usually accompanying cancer, chronic gastric catarrh and the gastric crises of certain organic nervous affections are adequate for a differentiation. It should be remembered, however, that ulcer is always accompanied by chronic catarrhal gastritis. Thus the pain of ulcer during a paroxysm may resemble the pain of gastralgia and in the intervals between the paroxysms, resemble that of chronic catarrh; but in such a dilemma it is safer to conclude that the disease which can give rise to both gastralgic pains and catarrhal soreness is present than that the patient is the victim at one and the same moment of two such dissimilar affections as chronic gastritis and nervous dyspepsia. I do not believe it is possible to diagnose the site of the ulcer, as Brinton teaches, by the location of the pain, by the manner in which it is affected by posture or by the mere ingestion of food. Peripheral pain is never uniformly situated when due to an uncertain, deep-lying lesion, and on the other hand patients assume all sorts of bizarre attitudes in their efforts to get rid of their agony.

Next to pain, vomiting is probably the most fre-

quent symptom of gastric ulcer, but unfortunately it is so commonly associated with other troubles that it is perhaps the least important in this. Its only value here lies in its association with other signs. Unlike pain it alone would never lead us to suspect ulcer. There are certain cases of ulcer in which vomiting is the most marked and distressing symptom, but unless the vomited matter contains blood or it is associated with several other characteristic symptoms, it is a perfectly useless indication of ulcer. It has been said that the vomiting of "mucus or of a thin fluid unmixed with food" is indicative of only chronic catarrhal gastritis, and that "alimentary vomiting" is always suggestive of gastric ulcer. I think I have seen alimentary vomiting more than once in chronic catarrhal gastritis, and moreover, catarrhal gastritis is almost invariably a complication of ulcer. Not infrequently the victim of ulcer experiences an intensely sour taste from the matter vomited, and this leads me to the consideration of the next symptom, hyperacidity.

In regard to the pathogenesis of gastric ulcer, the theory of the self-digestion of the gastric mucous membrane has had, and still has, many advocates. Whether the theory be true or false, it seems to be a fact that the hydrochloric acid of the stomach is in excess in a large percentage of the cases of ulcer. According to Korczynski and Jaworski,[1] it is greatest at the time of hemorrhage. Some declare that the excess of digestive fluid results from the irritative action of the ulcer itself, others that it precedes and originates the ulcer. Riegel, who has studied this symptom most exhaustively, says that the proportion of hydrochloric acid in the stomach of a case of chronic gastric ulcer is 0·4 to 0.6 per cent. as against 0.1 to 0.2 per cent. in health. Ewald's words are: "I regard the demonstration of increased acidity as a marked advance toward the recognition of this condition and it enables us to make an early diagnosis." Hence, hyperacidity, when present, becomes a valuable sign of gastric ulcer. I say advisedly "when present," because it sometimes happens that in the progress of the ulcer the acidity of the gastric juice diminishes to normal or even below normal. This has frequently been demonstrated by Ewald, Ritter and Hirsch and Jaworski. According to Lenhartz the acid may even be deficient in gastric ulcer. After reporting a case in which the percentage of acidity was far below the boundary line, Ewald remarks "that hyperacidity is not an absolute attribute of ulcer of the stomach and that a negative result is accordingly not decisive in establishing a diagnosis."[2] Furthermore, as ulcer is not infrequently associated with cancer, it may happen that the more pronounced manifestations of the ulcer will be accompanied by total absence of hydrochloric acid. Such association of ulcer and cancer occurs, according to Dietrich, in 5 per cent., according to Rosenheim in 8 per cent. of all gastric carcinomas. In these cases hyperacidity may continue with the growth of the cancerous tumor, or it may diminish. Unfortunately, we can not always obtain this valuable support to our diagnosis, the symptom of hyperacidity, even when it may be present. In many cases of ulcer there is no vomiting, not even nausea; and as soon as ulceration is suspected the passing of a tube into the stomach for the purpose of securing a sample of the gastric juice is regarded by most clinicians as too hazardous to pay for the meagre information likely to be obtained. For this reason Leube omits the acid test when he thinks he has a case of gastric ulcer. Germain-Sée disapproves of lavage and the use of the tube in such conditions since Cornillon and Daguet have both reported fatal hemorrhages from such maneuvers.

It has been shown by Schreiber and Pick that catheterization of the stomach, however gently performed, invariably produces an immediate and rapid outpouring of secretion from the gastric glands and that only after many trials does the viscus become tolerant enough to retain during such manipulation its wonted production of digestive fluid. In addition to this it must also be remembered that we can only diagnose hypersecretion, according to Vierordt, when by a rapid and careful procedure at least 200 c.c. of acid gastric secretion are obtained. All of this goes to show that those cases of ulcer in which the symptom of hyperacidity, however valuable it may be, becomes available are not very many. It is of some practical use, however, to notice that the state of the urine is more or less complementary to that of the gastric juice; for with the increase of acidity of the latter there is in the former an increase of specific gravity, diminution in quantity and loss of acidity. Alkalinity of the urine and a decrease or absence of its chlorids are bad prognostic signs.[3] With the increase of hydrochloric acid in the stomach there are also such general symptoms as thirst, heartburn, pain at night and acid vomiting. As a matter of differentiation it is to be remembered that inacidity occurs in gastric cancer, dilatation produced by an ulcer scar at the pylorus, in severe anemia, various fevers and simple nervous dyspepsia with or without gastralgia.

Indigestion on account of the associated chronic gastric catarrh, must obviously be a frequent symptom of gastric ulcer. As the indications of catarrhal dyspepsia are so familiar to all, they need not be detailed here. With all its train of objective and subjective manifestations, indigestion is not an altogether worthless symptom of ulcer, because in the first place it is almost constantly an accompaniment of ulcer and in the second place when constituting the general background of the picture in which appear one or more special symptoms of ulcer, it immensely strengthens the diagnosis. There is nothing peculiar about this indigestion except its persistency and conjunction with the other suspicious signs of gastric ulcer.

I have thus far referred to the more ordinary signs of ulcer, and I fully believe that if they are carefully studied in every case they will afford us more than a mere suspicion of the disease. The symptom, however, which completes the picture and gives precision to the diagnosis in the majority of well-defined cases at least is gastric hemorrhage. Out of seventy-two cases of hematemesis, forty resulted from gastric ulcer, according to Handfield Jones,[4] Lebert noted gastric hemorrhage in four-fifths of his cases, and in three-fifths of them the hematemesis was profuse. Brinton estimates that large hemorrhages occur in about one-third of all cases; according to Müller's analyses it occurs in one-fourth of the cases. Gastrorrhagia is sometimes the only symptom of ulcer, such cases being of the latent variety and quickly terminating fatally. They are the ulcères foudroyantes of the French authors. I believe that gastric hemor-

[1] Deut. med. Zeit., Berlin, April 28, 1892.
[2] Ewald, Diseases of the Stomach, 1894.
[3] Korczynski and Jaworski, Krakow, 1890, quoted by Sajous' Annual.
[4] Med. Chi. Transactions, vol. XLIII.

rhage occurs more often than is generally supposed, but that it is so slight as to pass off unnoticed by way of the bowels. I imagine that something of that sort may have caused the various fainting spells referred to in the case which I have reported.

Some authorities state that in gastric ulcer a hemorrhage sometimes occurs regularly as vicarious menstruation. Aside from their being but little foundation for such an opinion, I believe it would be dangerous for the patient and confusing to the diagnosis to so regard such hemorrhages. The irregular catamenia, especially the amenorrhea so common in these cases, are not the cause of the hemorrhages so much as the result of the debilitated constitution brought about by the loss of blood. A periodic hemorrhage in gastric ulcer is not menstrual but rather a gastrorrhagia accompanying the ulcer and provoked by the monthly disturbance of the system. If the hemorrhage is large and recent the blood will be bright red in color, alkaline, fluid and mixed with food and mucus. More frequently, however, it is retained long enough in the stomach to be acted upon by the gastric juice. It will then be more or less clotted, having the appearance of coffee grounds, changed in color to dark brown by the changing of hemoglobin into hematin, acid, unaerated and minutely intermingled with particles of food and sour mucus. Hematemesis occurs in many diseases and must always and especially be differentiated from hemoptysis.

In conclusion then, I believe that gastric ulcer may be strongly suspected where there is the peculiar pain already described and hyperacidity; and if to these be added gastrorrhagia, the diagnosis may be made with gratifying certainty. I have purposely refrained from considering the indications of the site of the ulcer, which in cases of perforation may be surgically important. My only object has been to emphasize and assign the proper valuation to each of the cardinal symptoms of gastric ulcer, symptoms upon which alone anything like a positive diagnosis may be based.

Columbus Memorial Building.

OBSERVATIONS AND STATISTICS UPON THE USE OF ANTITOXIN IN ONE HUNDRED CASES OF DIPHTHERIA.

BY ROSA ENGELMANN, B.A., M.D.

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CHICAGO.

The following observations, statistics and histories are offered as a contribution toward clearing up obscure and unsettled points relative to diphtheria and antitoxin.

It has long since been experimentally proven that the Klebs-Löffler bacillus produces a specific toxin giving rise to all the classic signs of diphtheria. The pseudo-diphtheria bacillus is supposed to be a non-virulent, attenuated or modified form of the former. The latter, the streptococcus longus, streptococcus pyogenes and staphylococcus are associated with the Löffler bacillus and cause pathogenic conditions, respecting which there is much to learn. For instance, such cases of croup, necessitating even intubation, in which these non-specific germs only could be grown in spite of repeated culture trials, have been relegated to the list of anomalous cases. Such an explanation, however, no longer satisfies the scientific world. More extended biologic research and study of serum-therapy will doubtless change the nomenclature of a disease having such a multiple genesis and pathology. The minuter chemico-physiologic reactions of the diphtheria toxin and antitoxin upon the human cell and organism still require elucidation. Before proceeding to the tabulation of cases as observed by me in eight weeks' service in the health department, I will formulate the points that particularly impressed themselves upon my attention and later emphasize them by a recital of interesting histories. They are:

1. The marvelously rapid improvement, especially in the laryngeal or most dangerous form of the disease when antitoxin is properly administered, viz., early enough, in large enough doses and in frequently repeated doses in severe cases where but little improvement is noted within eighteen hours.

2. The necessity for early cultural diagnosis.

3. The clinical relation of the pseudo-diphtheria bacillus to the Klebs-Löffler bacillus and their mutual interchangeable attributes, such as virulence, benignancy, transmission, etc.

4. Bacterial, aborted or modified diphtheria without clinical manifestation.

5. Persistence of the Klebs-Löffler bacilli in the throats of these subjects in spite of rigorously applied antiseptic treatment.

6. Menace to the community as contagion bearers of these subjects; hence the need of isolating them.

7. Relative absence of post-diphtheritic paralysis despite the severe character of the epidemic.

8. Period of, and positive and partial immunity conferred by the use of antitoxin.

9. Contraction of diphtheria after immunization due to the tardy use of antitoxin.

10. Rashes and sequelæ consequent to the use of antitoxin.

11. Failure to demonstrate the Löffler bacillus in some undoubted cases of diphtheria.

These inferences have been reached by actual observation and care of the greater number of cases comprised in the following table:

Cases visited or seen, 137; curative antitoxin doses given, 102; curative antitoxin doses given by me and assistants, 72; curative antitoxin doses given by other physicians in my district, 30; recoveries after antitoxin, 95; deaths after antitoxin, 7; physicians asking treatment for their patients, 9; physicians giving this treatment, 20; cultures made for 250; laryngeal cases, 50; mild laryngeal (seen within first sixty hours) cases, 28; severe stenotic cases, 22; cases immunized, 166; cases completely protected, 150; partially protected, 16; bacterial not clinical cases, 28; deaths twenty-four hours after injection, 3; deaths later, 2; deaths in which antitoxin was not used, 5; cases of paralysis within twenty-four hours after use of antitoxin, 2.

	1st day.	2d day.	3d day.	4th day.	Later.	Unknown day.
Number of cases injected.	16	34	21	10	14	7
Recovered	16	33	20	8	11	7
Died	0	1	1	2	3	0

Intubations by others, 4; intubations by me, 1; total 5; tracheotomies, 1; cases of rashes consequent to use of antitoxin, 12.

The death, as reported after the use of antitoxin upon the second day of the disease, was in a laryngeal case of probably longer duration than reported. That reported as having received an injection upon the third day, received, to my knowledge, too small an initial and second dose, and besides had not been freely enough stimulated. One of the cases of paralysis was in my practice and was, I think, due to the profound toxemia and could not be ascribed to the action of the antitoxin, for the diagnosis was not made until the fifth day of the disease, or until stenosis set in and

when the child was pretty well poisoned. Seven deaths in 103 cases, of 6.97 per cent., is a very low death rate, especially if one considers that 50 of the 103 cases, or almost 50 per cent., were croup, the most dangerous form of diphtheria. Doubling this death rate to 14 per cent. for the laryngeal cases, still leaves a remarkably low mortality. This brilliant record is due to the fact that 91 of the 103 cases were injected within the first three days. This was accomplished by reason of a large dispensary clientele upon whom cultures were made and the rapid and hearty coöperation of those in charge of the municipal laboratory, whence the reports reached us in from fifteen to eighteen hours, to be immediately acted upon. It is to be regretted that inasmuch as this was an out practice, no evidence as to the effects of antitoxin upon the kidneys could be obtained. Such histories of cases will now be selected as characterize the points above noted:

Case 1.—January 13, I was called in counsel to see Babe S., age 11 months, who had been sick thirty-six hours. It had almost choked to death during the night, as the mother expressed it. The breathing was stertorous and the cyanosis, dyspnea and stenosis were extreme. It had been freely stimulated and given slaking lime fumigations and an iron and bichlorid mixture. There were small patches on the tonsils. The culture showed a few Löffler bacilli only, because of the use of the antiseptics above indicated. Fifteen hundred units of antitoxin was immediately given, with the injunction to repeat the dose in eighteen hours if the child was not much better. The temperature was now 101.4, and had risen to 104.6 when I called again at noon of January 14. I again injected 1,500 units and now advised intubation in order to tide the child over until the second dose should have begun to take effect. By evening the temperature had again fallen and the child was so markedly improved that the latter procedure was obviated. January 15 cyanosis, dyspnea and stenosis had entirly disappeared and the harsh, noisy respiration was the only indication of the recent trouble. The child was bright, smiling and playing with its rattle, in wonderful contrast to its forty-eight hours previous struggle for breath. Six hundred units more was administered in order to entirely clear up the remnants of membrane still evidently in the larynx; for the fauces were now clear. This child made a rapid and uneventful recovery without sequelæ or complications.

Earlier in my experience with the use of antitoxin, I had not used it so boldly nor freely, and the cases had invariably progressed to the point where intubation and even tracheotomy were necessitated. I have likewise noticed that in the late cases where tubes were worn and antitoxin freely given, the former were expelled or removed early and sometimes repeatedly, because of the rapid sloughing of the membrane.

The advisability, yes, indispensability of an early cultural diagnosis, the intimate connection of the pseudo-diphtheria to the true or Klebs-Löffler bacillus and its interchangeable virulent and transmittant attributes, are exemplified in the following case. The pseudo-diphtheria bacillus is considered a non-virulent, attenuated variety of the Klebs-Löffler bacillus, consequently should give rise to a mild form of the disease and propagate itself in its own form in the throats of other exposed children. It did neither in this instance, for babe S. died of heart failure after laryngeal stenosis due to the pseudo-bacillus that in its turn communicated a mild or aborted form of the disease to four other children who were not ill one minute, but nevertheless harbored the Löffler bacillus for some time. Such conflicting facts still demand explanation.

Case 2.—January 19. Babe S., 10 months old; slightly ailing; hoarse, coughing, coryza, faucial hyperemia, no patches. Morning temperature 101.6; evening temperature 99.2. Believing this to be a case of grippe, I gave it no further thought, nor did I make a culture. January 21, the child reported better. January 22, the nurse telephoned to me that the babe had been croupy during the night. When I arrived at 2 P.M. the child was so dyspneic and cyanotic that Dr. Morganthau intubated for me; 1,000 units of antitoxin No. 2 was also given. Calomel sublimations and free stimulation was ordered. After recovering from the exhaustion incident to placing the tube, the babe's pulse and respiration were good. From the membrane and mucus coughed up a culture was made that demonstrated the pseudo-diphtheria bacillus. 5 P.M., child breathing comfortably, looked well, slept a couple of hours. 7 P.M., labored respiration, took milk and brandy well that was afterward regularly administered. 9 P.M., coughed up the tube, respiration labored; calomel sublimation; pulse 120, respiration 60, temperature 101.6. 12 M., pulse 120, respiration 60, temperature 101.6. 1 A.M., sleeping quietly. 1:10 A.M., the nurse noticed that the breathing was shallow and the child almost pulseless; no struggle, dyspnea or cyanosis. 1:20 A.M., it died; no autopsy permitted; death due probably to cardiac paralysis.

Case 3.—Babe E., 1 year old; seen December 29, eighteen hours after being taken sick. Patch on one tonsil; larynx involved to the point of beginning stenosis; temperature 103.4. Injected 10 c.c. of No. 3. January 1, great improvement; temperature 99; breathing comfortably. January 3, tonsil clean; child well. Almost a pure culture of the Löffler bacillus was demonstrated in this case, that infected the cousin Ellen E. with the pseudo-diphtheria bacillus, but who, because of antitoxin immunization, manifested no clinical signs of diphtheria. The antitoxin, however, produced in her eight days after injection pain, swelling and redness of one thigh and leg; 300 units from the same bottle, given to her brother, caused a generalized urticaria to appear in him.

Case 4 is another instance of the communication of the Klebs-Löffler bacillus infection, hence, true diphtheria, by means of the pseudo-diphtheria germ. Mary F., age 3½ years; seen January 2 upon the fourth day of her illness. Made a culture that showed a few pseudo-diphtheria bacilli and staphylococci. It was a severe pharyngeal and tonsillar type of the trouble and thirty-six hours after the injection of 10 c.c., of No. 2, the membrane was extruded *en masse*, the edges having first curled up. This same process was observed by me in several other cases. Cultures made again January 4 and 7, corroborated the original finding of pseudo-diphtheria bacillus. This child's mother had free intercourse with a neighboring cousin's family, where three days later I was asked to attend a case. I reached it January 5. Two children had been ill for twelve hours. The Löffler bacillus was found growing in their throats, and antitoxin given to them. Their recovery was rapid as compared to the supposedly lighter but really severer incursion of the pseudo-germ upon their cousin.

In a series of thirty cases I have cultural proof of bacterial infection minus clinical manifestation. In some of the cases there was absolutely no evidence of disease; in others such slight evidence that it was difficult to convince the parents of the reason for the exclusion of their children from the institution; in still others, because immunized by small doses of antitoxin, so mild an attack that it might be called aborted or modified diphtheria, for there was but slight rise of temperature, unimportant faucial hyperemia and no membrane visible. In these cases infection had probably taken place shortly before or at the time of injection, since they were not antitoxinized until we discovered by daily prophylactic cultures that a bacterial case at least had crept into "The Sheltering Home."

December 21. Isa G. sought admittance to the above institution. He was not sick but a culture disclosed the Löffler bacillus in his throat to the exclusion of all other germs. January 12, a clean bill of health permitted his entrance. He had received no antitoxin and seemed particularly insusceptible as did other members of his family.

January 21, Ida G. was reported sick; temperature 99.6; tonsils swollen; crypts patulous; Löffler bacillus present; no patches. Was isolated and given 500 units of antitoxin and twenty-one other children each given a 200 unit of immunizing dose completely protecting ten.

A like procedure, two months previous to this, had absolutely immunized twenty-four out of twenty-eight cases subjected to this treatment. Four of these cases

harbored the Löffler bacillus but were not sick. They were immunized for eight weeks, being more or less exposed during this period. Later we had another outbreak. Six adults refused immunization and one of them, just nine days after exposure, contracted the disease. The five remaining members of this household now allowed me to inject them. One, however, was not absolutely protected; for five days later a mild form of the trouble appeared in her. To return to the history of Ida G.; she never developed patches and seemed well although her temperature ranged from 99 to 99.6 and 100.6 for ten days and the bacillus was ever present and is still present sixteen days after the onset of her attack. She in turn infected the above-mentioned insusceptible case Isa G., and a sister who January 22 and 23 were respectively taken sick. Up to this date their throats were free but now showed the Löffler bacillus. The boy's temperature was 103 before administering the extra dose of 500 units of antitoxin but fell in twenty-four hours to 102.2. Throats of both were in the same condition as the previously described case. They were now sent home and escaped my farther observation. Daily cultures were now being made and the institution kept open. The urine examined in all these cases before and after receiving antitoxin, proved negative. Seven other inmates (none of whom became ill) developed a Löffler bacterial growth upon January 25, 29, 30, 31, February 3 and 4, respectively, viz., 3, 7, 8, 9, 12 and 13 days after exposure. These, the unrecognized contagion bearers, are during an epidemic, the most difficult subjects to deal with, and at any time a menace to others. In the cases that contracted the disease after antitoxin administration I was able to trace the infection as contemporaneous with the original source. The disease as thus contracted was also incipient or bacillary only.

Rashes appeared in 12 out of 269 subjects injected with antitoxin or a little over 5 per cent; a proportionately slight evil as compared to the benefit derived. Arthritis obtained in two cases; in one after a dose of No. 3, and in the other after a small immunizing dose. In the first case although croup, the cultural finding was negative. Both knees were here involved, while in case No. 2 it was the shoulder and wrist of the side injected. Edema, redness and an erythematous rash of one leg appeared in a little girl eight days after the reception of an immunizing dose. Her culture showed the pseudo-bacillus, although she was exposed to a Löffler bacillus infection. Her brother, who received some of the contents from the same bottle, developed urticaria. I saw another case of urticaria in a child who was subject to this malady. In still another instance, after an immunizing dose, a child who had previous attacks of eczema, now exhibited an additional outbreak. A papular rash appeared in five patients; in two, eight days, and in one, six days after the injection. A fourth subject was first seized by a papular affection followed by an urticarial eruption and left facial edema involving the left eyelid. No urine could be obtained for examination; nor was an analysis made in any of these cases. In an adult, eight days after injection an erysipelous-like rash appeared at the injection site in the anterior upper thoracic region and extended upward and outward to the point of the shoulder inward to the middle sternal line and downward to the nipple. There was great pain and stiffness in all the joints of the upper extremity of that side, general pain, malaise and some rise of temperature. Ichthyol ointment was applied by the attending physician who reported rapid improvement.

I have noticed that most patients have complained of pain and soreness after the injection and many children manifested much uneasiness the night after the administration of antitoxin. A few older patients returning to me some time after such a procedure complained that they had not felt well since. I saw a number of cases of unquestionable laryngeal diphtheria of great severity in which repeated cultures failed to demonstrate the Löffler bacillus. In some instances, this was due to the fact that the cases were seen at a late day when the field was overwhelmed with staphlococci and streptococci, and in others to the use of various antiseptic solutions and sprays. But again in many other cases where the last mentioned conditions obtained, I was able to secure cultures. Wherefore in some cases and not in all is a query requiring an answer.

3353 Indiana Avenue.

CLINICAL NOTE UPON AN OVERDOSE OF PROTO-NUCLEIN.

BY H. V. WÜRDEMANN, M.D.
MILWAUKEE, WIS.

A female child, aged 3 years, parents of upper class; subject of malnutrition, from whom large amount of pharyngeal adenoids had been removed six weeks before; in addition to diet and general regimen had been given proto-nuclein tablets, 5 grs. each, taken twice to three times a day (Reed & Carnrick's). Had taken these for about a month. Great benefit as regards general health, the condition of the nose, throat and ears had followed. The improvement was mainly ascribed to removal of the adenoid tissue and restoration of nasal breathing. This child was addicted to eating lead pencils, pieces of chalk, etc., and had previously taken medicine of some kind in large quantity without knowledge of the parents.

On February 4 she was observed to be playing with a bottle which had contained proto-nuclein tablets, of which it is supposed twenty-five or thirty remained (125 to 150 grains or 8 to 10 grams). The bottle was found to be empty and a couple of the crushed tablets were removed from the mouth. She said she had eaten all that was there and parents are convinced of the fact. The child was brought to my office within an hour, when I could observe no apparent change from her general health. Advised half-hourly drinks of water with small lump of carbonate of magnesia. The spoiled child would not take the magnesia and drank the water only when she was inclined. Was seen at noon, when she appeared excitable, pulse full and fast (125). At 6 P.M. had been quite vivacious during afternoon; seemed otherwise well. Pulse 120, tongue clean, no pain. Had passed urine several times in her clothes (a general habit). Specimen could not be obtained. During the night she slept well and was seen the next morning, when nothing was observed. Since then child has been apparently well.

The ingestion of 8 to 10 grams (125 to 150 grains), from twenty-five to thirty times the usual dose of a presumably standard and fresh preparation, had no effect whatever beyond slight mental excitation and acceleration of the heart's action. We would not ascribe this to the environment, as neither the parents

nor myself had anxiety over the dose, as I have looked upon the preparation in the light of a condensed nutriment rather than as a drug. It is yet on trial with me, but in all cases in which I have used it no results have been observed which could be ascribed to the exhibition of the proto-nuclein itself. It has apparently no toxic effect, and is perhaps inert as regards any physiologic action.

805 Grand Avenue.

SOCIETY PROCEEDINGS.

Sanitary Conference of Pennsylvania.

Third Annual Meeting of the Associated Health Authorites of Pennsylvania, Jan. 23, 1896, at Harrisburg, Pa.

In the absence of the Governor, MR. CROSBY GRAY, First Vice President, called the meeting to order. Prayer was offered by Rev. B. B. Hamlin, D.D. On behalf of the Mayor of Harrisburg, DR. H. HAMILTON addressed the members in welcome to the city. Mr. Gray responded for the Association. A letter from Dr. L. Pierson, State Veterinarian, regretting his inability to be present, and on motion he was made an honorary member.

DR. R. L. PITFIELD, Assistant Bacteriologist to the State Board of Health, read a paper entitled

THE BACTERIOLOGICAL ETIOLOGY AND DIAGNOSIS IN DIPHTHERIA.

He alluded to the interesting and valuable improvements in medicine in the last fifteen years. Among these is the scientific study of diphtheria, particularly since 1883, when Klebs first described its bacillus; a year later Löffler confirmed this, isolated it and with it produced the disease in lower animals. Not only the etiology has been made known, but its absolute diagnosis has been developed and a specific cure has been obtained. Roux, Behring and others have shown the antitoxic serum as its specific. Medical men can with pride view this progress; chemistry to-day is on the verge of a revolution, while medicine is more firmly enthroned. The bacillus of diphtheria is a slender, little rod, varying in size, shape and internal structure. By its variability we are able almost at once to recognize it. It is often club-shaped, with rounded ends, a slender middle, or it is spindle-shaped with pointed ends. The shape and general morphology vary as the age and conditions of growth, such as the chemic reaction of its food. On a solid medium it grows little grayish colonies, which are rounded with irregular edges, and are like ground glass in that they do not reflect the light. If stained with an aniline dye, various parts take up the color with varying intensity; some stain deeply, others but little; this gives a characteristic appearance to the bacillus. Often if a blue dye is used, black points appear in its continuity which do not transmit light. The bacillus can not move independently nor form spores. It grows best at the temperature of the body, and exposure to heat above 58 C. kills it in a short time. It has never been found "wild," that is, it is a distinct parasite and differs from some other pathogenic bacteria in this way. Cholera, for instance, exists normally in certain waters all the year round as a native. The native home of the bacillus is in the human mucous membrane of the throat especially, from which it may escape by coughing, by saliva, by contact with spoons, forks, cups, handkerchiefs or by kissing. It is also found in the air-passages of chickens, kittens and other animals. It is rarely found in the air and thrives best in moist places, if warm and dark. It readily grows upon a culture medium devised by Löffler, and for diagnosis this is best. This is called the Löffler blood-serum mixture. It is prepared by collecting the blood from an ox in a clean, sterile jar which has been slightly warmed, and after the clot is formed the fluid or serum is drawn off in sterile pipettes. This serum is then mixed with bouillon, one part bouillon to three of serum. The former containing 1 per cent. of glycerin. A little of the mixture is run into sterile test tubes plugged with cotton wool. They are placed in a hot chamber at a temperature of 78 C. in such a way as to slope the surface of the serum and make a large surface oblique to the sides of the tube. These are kept in the apparatus an hour or more till the serum is coagulated into a firm, translucent jelly, then they are sterilized for three consecutive days in a steam sterilizer twenty minutes each day in order to kill all stray bacteria which may have gotten in. To make a diagnosis of diphtheria, a sterile swab which has been kept in a sterile test tube is firmly rubbed over the membrane in the throat and this is gently rubbed over the moist surface of the serum and then the tube is carefully replugged and put in an incubator and kept at the temperature of the body, 37 C. for twelve or more hours. If the case be diphtheria, on the surface of the serum will have crept a fine, delicate frosting of raised beads, close together, of a grayish color, semi-translucent; these are heaps of diphtheria bacilli, grown on the serum. With a delicate, flattened platinum wire, well flamed, a few of these are lifted off and gently rubbed on the surface of a clean cover slip, on which a drop of water has been placed. This is dried, stained with an alkaline solution of methyl blue, mounted, and when the lens is brought to bear on it, the field will be found full of delicate, little rods lying in all directions, often in clumps of a dozen or singly. By careful study the organism is seen to vary in size and general appearance, as before mentioned. This and the fact that it takes the stain in varying intensities enables one to make the diagnosis, especially if the culture appears normal to the naked eye. The diagnosis is best done if the swab is rubbed over the membrane before antiseptics have been used. We may find many other organisms, as yeast, molds and other bacteria, especially the staphylococcus, etc., which often cause abscesses. One strongly imitates the diphtheria bacillus in producing a membrane, and in its culture a frosting only a little whiter, but under the microscope it is seen to consist of a chain of little rounded bodies called cocci, which are in some way held together, and there is often a string of eight to sixteen. This organism is also the cause of many inflammatory diseases as erysipelas, puerperal fever, septicemia, and perhaps scarlet fever. Many apparently simple sore throats both with or without a membrane are caused by it. As the diphtheria bacillus developed in the throat, it produced a poisonous alkaloid called toxin, which penetrates the cells of the mucous membrane and the protoplasm of these coagulates, causing them to swell up and turn white as they die. This is the origin of the yellowish white membrane from which the disease takes its name. It is full of dead organisms. Often it mechanicaly interferes with breathing, especially if it grows on the larynx, and frequently in young children and even adults it causes death by suffocation. The poison penetrates the mucous membrane, the tonsils, lymphatic glands and the whole system, causing fever, depression, rapid pulse, and often paralysis of important nerves, not only of the limbs, but of the circulatory apparatus and the diaphragm: the heart is often overwhelmed and death results from acute poisoning. If the toxin is collected from old cultures by filtering off the germs, it will produce the same effects if given in large doses by injection to small animals; four drops will kill a guinea-pig in twenty-four to forty-eight hours; yet no germs were injected. The worst cases are where there is a mixture of diphtheria bacilli and the streptococci. Both toxins are absorbed and death ensues from a double poisoning. Serum tubes often show this mixture. Thus we are enabled to say if a case is diphtheria alone, or a mixed infection. Many epidemics of sore throat are caused by this streptococcus, and often have a membrane like diphtheria. The diagnosis is of great importance in those cases where the precious remedy, antitoxin, can be employed, for sore throats which are simply follicular tonsillitis need no antitoxin. Dr. Bissell, of Buffalo, says: "It is generally admitted that it is often impossible to make an accurate diagnosis either from a clinical or anatomic lesion or from both. There are no constant differences that separate the simple non-contagious forms of inflammation from the diphtheritic type and it is but a very small proportion of cases that an early and reliable diagnosis can be reached by any data obtainable. In Willard Parker Hospital 30 to 50 per cent. were found to be non-diphtheritic. Such a case with lowered vitality, if sent to a diphtheritic ward would almost surely be attacked by the more dangerous disease. In suspected cases it was found that 72 per cent. were real diphtheria. Children often are attacked by membranous croup, which is a mild diphtheria, killing more by suffocation than poisoning. I believe that in older people with more vitality the same organism is often present but causes only a temporary headache and fever. In epidemics the character of the disease varies much, from a low grade of virulence, perhaps a croup, to the most fatal form; yet the more fatal form may result from exposure to the milder. High vitality enables many to throw off the attack and no membrane forms; yet safety demands isolation of all such. It has been seen in thirteen families with no isolation, forty-eight children exposed to one with a mild form, 50 per cent had diphtheria subsequently. But where strict isolation was practiced, only 10 per cent. had the bacilli. All should be under suspicion till cultures showed the absence of the contagion. The bacillus does not often survive out of the human body and is easily killed by sunlight, heat and chemicals. It is spread more by direct contact than by the air, and has been found in emanations from

dead animals and in sewer gas. A small epidemic in my practice was traced to a game of marbles, all were sick, two died, and the father of one told me that all breathed on the marbles or held them in their mouths. Doubtless one had it and communicated it to the others. Slates often cause the disease. Think of the things that are put in the mouths by children; they often trade chewing gum, partly sucked candy, bitten apples. Apparently well people walk the streets with the bacilli in their throats; they complain but have no objective signs as membrane or enlarged tonsils. Park, in 330 examinations, found the bacilli in twenty-four, the virulent form in eight; hence the demand for care in all contact where there is the slightest doubt, when it can be so easily transmitted by kissing, handling an envelope sealed by the lips of such a one. Next we come to the important phase from a hygienic standpoint. It has been found after the disappearance of the membrane that the bacilli are still present in the throat and capable weeks after of producing the disease. One observer in 752 cases found an absolute disappearance of bacilli at the end of three days in 325; in 427 they persisted much longer; in 201 five to seven days; in 84, for twelve days; in 69, fifteen days; in 57, three weeks; in 11, four weeks; in 5, five weeks; in 1, for seven months after the disappearance of the membrane. Cultures made produced the disease in guinea-pigs within forty hours. This shows that the bacilli are able to cause infection long after the original case appears well and the need of thorough disinfection. It has been shown that in those cases where Löffler's solution has been used, recovery is soonest and the bacilli disappear earlier than in any other form of treatment. The deductions are that diagnosis requires bacteriologic aid. I am convinced that error is made where physicians say their results without antitoxin are equal or better than those with it; these are merely follicular tonsillitis. In conclusion, all suspects should be tested by the culture; all others in a family should also be examined; all should be strictly quarantined till the culture proves it not diphtheria; membrane croup should be considered diphtheria and so regulated.

In the absence of DR. R. MEADE BOLTON, Bacteriologist to the Philadelphia City Board of Health, the Secretary read his paper entitled "The Advantages of Bacteriologic Investigations to Boards of Health." He particularly alluded to the need of laboratories. Their usefulness depends upon the manner in which they are looked upon by the boards. The forlorn state of many scientific men in public laboratories is due to their being forced into a rut. If the board reposes confidence it must select the best men. All are not able to do this work. All need training before selection for the work. To know what to expect he described the working in his own laboratory. 1, The examination of pathologic material sent in by physicians; 2, preparation of diphtheria antitoxin; 3, experimental work upon questions pertaining to bacteriology. The first has consisted for the most part in the examination of cultures made from the throats of diphtheria suspects. Other work is the examination of sputum for tubercle, urine, cultures from wounds and tumors.

The system of examination was modeled upon that in New York City. After organization a circular was issued to physicians explaining what the laboratory was ready to do, telling how to make inoculations, tubes and swabs being sent for the purpose. Physicians have largely availed themselves of the opportunity. A culture outfit was shown; a tube with a cotton swab on an aluminium wire, and a little book for notes of the case. All are kept for reference. Results are sent by cards to the physicians. You should expect prompt recognition of diphtheria, consumption, etc. The preparation of diphtheria antitoxin is a part of the work, and other antitoxins must soon follow. The treating of infectious disease is as follows: Bacteria are now well known to cause disease. These are taken in with the food, drink, or by wounds, or the breath. They grow and reproduce and thus produce toxins. If the animal recovers, the toxins are neutralized in the body of the animal by the production of an antitoxin. Thus if diphtheria bacilli or their products are injected into an animal an antitoxin is produced in the animal. This cures the animal, but if drawn off can be used to cure others. The antitoxin is found in the fluids, notably in the liquor of the blood, also in the milk and elsewhere. The preparation of the antitoxin is done by gradually injecting a large quantity of the diphtheria toxin into a large animal, then drawing the blood of the animal. Horses are preferred. In the laboratories the production of all forms of antitoxins should now be a large part of the work. Select trained men, have well equipped laboratories, do not overburden them, expect prompt recognition of infectious diseases, the preparation of antitoxins and finally advances in knowledge of infections.

The matter of these papers was well discussed, and much valuable information obtained by the eager sanitarians anxious to prove of value to their respective localities.

DR. A. H. HALBERSTADT, President of the Pottsville Board, who believed there existed a close relation between slaughter houses, bone boiling establishments and other noxious trades which fill the air with foul odors, offered a resolution to appoint a committee to examine this question from a bacteriologic standpoint and report next year. This was adopted, and an able committee appointed.

DR. JOSEPH MCFARLAND, Lecturer on Bacteriology, University of Pennsylvania, read a paper on "Diphtheria Antitoxic Serum." All are familiar with the fact that vegetable and animal cells produce powerful poisons. Now man and animals can accustom themselves to these poisons and endure a very large quantity, as in tobacco, opium, etc. So the hog, because of the slow absorption of rattlesnake poison through its layers of fat, gradually became accustomed to this poison. So with snake charmers, tolerance of the poison is secured. This was inexplicable till Emil Behring in Berlin discovered that, in the blood, there occurred a new substance capable of protecting the animal as well as other animals when injected into them. This must be known as new, having nothing to do with the normal blood. Its effect is to stimulate the cells so they can endure the poisons named. They are not chemic neutralizing agents. Diphtheria antitoxin is one of a group of remedial agents. So with rattlesnake and cobra poison, a specific is generated able to protect other animals into which they are introduced. Ehrlich has shown that when animals are immunized to large doses of ricin and abrin antitoxins, antiricin and antiabrin are produced which will protect non-immunized animals. The toxin of diphtheria is the poison of the diphtheria bacilli. Diphtheria is not due to the throat lesion, but to the circulation in the blood of this poison. Hence in treating diphtheria the general poisoning is to be regarded. Each poison must be combated by its own antidote, or antitoxin. In diphtheria after recovery by use of antitoxin, the throat still contains virulent diphtheria, but as the symptoms are due to the circulation in the blood of the poison, we understand the recovery when we remember that the poison is no longer poisonous after the administration of antitoxin. Next it is important to make sure of good antitoxin. The mortality statistics show a diminution from 40 to 50 per cent. before the use of antitoxin to but 10 or 15 per cent. since. First, it must be strong. It is not a fatal dose to be arrived at, but the determination of the smallest fatal dose, which requires great nicety of calculation, time and the sacrifice of a large number of animals. Next is the personal equation of the experimenter and individual susceptibility of the guinea-pig. Normal antitoxin will with one-tenth of a c.c. protect a guinea-pig against ten times the smallest fatal dose of toxin. The serums ordinarily used are one hundred times as strong. Inexperienced persons can not test the serum. Fortunately, the exact strength of the antitoxin is of no importance therapeutically, because the exact dose required can never be estimated. There are, no doubt, cases in which we give ten times as much antitoxin as is really needed; at other times no doubt we give one-tenth as much as needed. It does not easily spoil. Many of you are aware that freshly drawn blood is germicidal and retains this power a long time. It is not safe to depend on this; it is best to add some substance which shall not interfere with its virtue and yet preserve it. He showed serums preserved with camphor, chloroform, salicylate of sodium, carbolic acid and tricresol. He preferred the two latter as more certain. These cause a flocculent precipitate which does not interfere but must be filtered off. Tricresol is three times as germicidal as carbolic acid and less than one-third as poisonous. Objections exist to the use of antitoxin. Sudden death has been reported, but now no one regards this as true. Paralysis is apt to follow, but this occurs from diphtheria alone. Destructive action on the kidneys, this too occurs where it is not used. Or cases made diphtheria by its use, but antitoxin can not produce diphtheria. There are no germs in it. It would be quite as possible to develop a castor plant from a dose of castor oil. In its preparation, the cultures of diphtheria bacillus are first killed by the addition of a germicide, then filtered through unglazed porcelain. This sterile substance is injected in increasing quantities into the subcutaneous tissues of a horse until experiment shows the blood to contain antitoxin. The horse is then bled from a vein, the clear serum after coagulation pipetted off and preserved with tricresol. This is the antitoxin. The horse has never had diphtheria. The last objection is that it does not always succeed. We can not accept the statistics of those who have used it in a dozen cases, against those of a hundred, nor can we rely upon its use in combination with other remedies. On the lower animals its action is invariable. In the early stages in proper dosage, large enough, there is almost no fatality. Every case

can not be cured, first because we do not know how much toxin is in the blood and hence do not use enough antitoxin; second, because the toxin produces rapid disorganization of the nervous centers, which can never be regenerated. A few cases dying is no reason for rejecting a remedy which has in all parts of the world shown an extraordinary efficiency, so that some assert that it is God's latest and best gift to his children.

Recess was taken till 2:30 P.M.

On reassembling, DR. PITFIELD offered the following:

Resolved, That this Association recommend the antitoxin of diphtheria as preventive of diphtheria.

This provoked much discussion as not being proper from an Association composed of a very large number not learned in medicine, etc. On motion it was laid on the table.

DR. PITFIELD then moved the appointment of a committee to investigate and report next year. After still further discussion on motion of Dr. W. B. Atkinson, the subject was referred to the State Medical Society of Pennsylvania, asking them to inform this Association of their investigation.

Reports of various committees were received and filed.

The special committee on teaching physiology in the public schools reported, showing the many and egregrious errors in the books selected for text books, many of which caused laughter in the meeting; the committee had found the authors and publishers willing to correct these errors, etc. On motion the committee was continued till they saw these changes made.

DR. J. T. ROTHROCK, State Forestry Commissioner, addressed the Association on the relation of forests to the water supply. Major Raymond says that all the water that falls on a forest is taken up by the ground, but all that falls on cleared ground soaks in and runs away. In several valleys cleared by the ax and fire he had observed the results of inundations. These valleys were very dry. These inundations destroy life and property. When the leaves and brush intercept the rainfall, it is carried beyond the chance of immediate evaporation, or running away. Growing trees give off water equal to thousands of billions of tons, in a season. The moisture in the atmosphere is a means by which excess of heat is prevented, and loss of heat which is needed to prevent freezing of vegetables, etc. An even temperature is thus preserved. New York has 3,700,000 acres in the Adirondacks, it needs only two forest reservations, while Pennsylvania requires more, as we can not obtain such large parks; hence, we would start with eight miles square parks which will be object lessons to all. We ought to own all the mountain tops, as the owners are compelled to pay taxes for unproductive land, and must clear away the wood to pay it. Some have paid more tax than the ground would sell for. We should preserve our water, and not be compelled to filter it. There are 1,000 square miles lying between Luzerne, Lackawanna, Monroe and Pike Counties, practically worthless, but a magnificent water shed; as these can be had cheap, we ought to secure them. Forests have grown up within the recollection of the speaker. If fire is kept away they reproduce themselves. Coal is not inexhaustible; we must have some other supply for heat and light; therefore, to generate electricity for heat and light we must have water supplies and must keep our forests.

DR. LEE inquired if he would again bring up the Act which he read and which had been before the legislature at the last session?

DR. ROTHROCK—Yes! Till doomsday unless we get it before. The only reason for its non-passage at the last session was a lack of funds in the State Treasury.

On motion of Dr. Lee it was resolved that the Associated Health Authorities of Pennsylvania heartily endorse the efforts of the State Department of Agriculture, and of the State Forestry Commissioner to obtain the passage of an Act to establish Forestry Reservations at different points in this State as a means of maintaining the purity and permanence of water supplies.

A delegate from Scranton asked that the Associated Health Authorities of Lackawanna County be recognized by this Association.

On motion of Dr. R. Maison a Committee was appointed to consider and report on the relations of such bodies to this Association.

DR. GROFF of the Committee on Legislation reported their success in preventing the passage of the Act to destroy the local Boards of Health.

In the evening, PROF. F. C. PHILLIPS, of the Western University of Pennsylvania, Chemist to the State Board of Health, read a paper on the the "Protection of Water Supplies." He believed in the protection of the rivers. He mentioned the Allegheny and Monongahela surrounded with beautiful hills, but a near inspection shows a frightful condition; refuse and garbage spread around from the towns and people along the banks. The smell is intolerable. Here the markets and slaughterhouses empty their refuse, which decays in the rays of the sun; further up are the culm and slack from the coal mines, the washings of the coke furnaces, etc. The pyrites washed into the river is carried into the boilers, injuring them; the acids from the galvanizing works, from the stock yards the nitrogenous compounds, the offal, all help to make up a disgusting, dangerous mass to go into the water as the rain raises its level and flows down to the reservoirs below. The deforesting of the land in the west and northwest where these rivers rise causes the washing of the soil into the stream, and with the matters just mentioned increases largely the pollution, at present three times what it was twenty years ago. In the Monongahela the original amount of carbonate of lime was small, now this is neutralized with the free acids and the iron works can not use the water without the employment of a neutralizer or it destroys the boilers in a few weeks. That water purifies itself is believed by many. This is a doubtful matter. It is surprising to find how organic matter accumulates at the bottom of a river. Typhoid germs live 100 days in ordinary water; while they do not increase, they are active. We have no law to prevent stream pollution. Pittsburg can employ an old law within five miles of its borders, but there is no penalty attached. Allegheny does much to prevent pollution by an old law. The State Board has done much, but we must bring people to understand the necessity of caring for the water by abating these nuisances. In starting new works, the idea is to use the nearest water and pour all into it. Eleven States are protecting their streams. Others appear to think it better to purify the water after it is polluted. The remedy is to have Congress appoint a Rivers Conservancy Board. This would be excellent for Pennsylvania. Till then, the State Health Board should have control over this matter, and act at its discretion. It is difficult to suggest the best plan as legislation is opposed by those with a pecuniary interest. We must influence the people. We must educate them to the vast importance of this matter. A very important need is to require all hospitals to purify their sewerage. This would be an object lesson. Leaflets on the matter, lectures on water supplies, conventions of all kinds should take it up. But unfortunately these meet in large cities where the water is known to be pure. Yet many delegates incur a great risk by drinking the water in which are typhoid germs. Water meters should be used to stay the waste of water. Too much waste makes more sewage to purify.

DR. ROTHROCK believed we could obtain the aid of the people if they were fully informed of the dangers from this source. The way is, at all teachers' conventions and institutes, to bring before them the need of legislation to prevent this source of disease and death being continued. Employ every way to instruct the people, rouse public sentiment and they will no longer tolerate it.

DR. LEE said it was worse below Pittsburg than above. Braddock's slaughter houses dump all into the water; this runs sluggishly and the stuff lies in a festering mass, filled with maggots, etc.

It was finally agreed that the Committee on Legislation should prepare an Act on this matter and present it to the legislature without reference to the Association.

Adjourned till morning.

On Friday morning, DR. LEE read and commented on the new law relative to the report, etc., of contagious diseases.

It was resolved that the Legislative Committee be instructed to prepare and present to the legislature a Bill to increase the powers of the State Board of Health, as well as the annual appropriation, and to confer with the local boards urging each to use its influence with the members of the legislature to promote its enactment.

A letter from H. H. Quimby, President of the School Directors' Association of the State, relative to the great need of township boards of health, urging that the school boards be impressed with the importance of sanitary measures. The most fruitful field for the propagation of disease is the public school, hence school directors who have the power to close the schools during the prevalence of epidemics should be brought to understand their duties in this respect.

DR. LEE explained what had been done in this respect.

On motion the letter was referred to the State Board with the request that appropriate circulars be sent to the school boards of the rural districts.

The Secretary read a paper by Dr. Edward O. Shakspeare "The Production, Transport, Sale and Delivery of Dairy Products should be under the Sanitary Control of the Labor Board of Health where these Products are Consumed." The liability of these products to become infected with disease

before they reach the consumer, the epidemic thus caused, cholera infantum, tuberculosis in infancy, were alluded to. Intervention should begin at the beginning, and continue till the consumer is reached. It should be executed first and best through the accredited and responsible agents of the local board of health of the consumer. The dairy farm is the one chief source where milk becomes infected. The dealer's shop, for reception of the milk supply and its distribution to the consumer, is the other chief source of contamination. Prevention of infection at both will curtail much of the mortality from infected milk. The first is rarely if ever reached. A sanitary inspection of the cows, their food, surroundings, water supply, health of the dairymen, the collecting and handling of the milk made at unexpected times repeatedly, to exclude diseased cattle, infection of the milk, is essential; then a rigid inspection of the shop, etc. The agents must be thoroughly reliable, and well informed. He must not be influenced by commercial interest or mercenary motives. Otherwise the inspection will be worthless. A proper license system is absolutely needed. This to be wholly in the hands of the health authority. Cost to be nominal to the producer, more expensive to the dealer. The invested capital of the former is much greater. Milk from unlicensed to be prohibited entering the health districts. While it may be objected that this is an unwarrantable interference with individual rights, it must be remembered that the milk business is one of the most dangerous of human occupations. People have a right to this protection.

This paper was discussed and approved by the members.

On motion of Mr. Gallagher the Legislative Committee was directed to prepared a bill to present to the next legislature, covering the ground stated. An amendment to the plan of organization of the Association was adopted admitting all health boards which had united in a county health association at the rate of $2.50 each.

The annual election was then held, resulting: First Vice-President, Crosby Gray, Pittsburg; Second Vice-President, Dr. J. S. Hunt, Easton; Third Vice-President, A. M. Sloan, Esq., Greensburg; Secretary, Dr. Wm. B. Atkinson, Philadelphia; Treasurer, Dr. Jesse C. Green, West Chester. The usual standing committees were appointed, and the Association closed its session after some remarks by Mr. Crosby Gray.

Chicago Ophthalmological and Otological Society.

Annual Meeting held at the Chicago Athletic Association Hall Jan. 14 1896.

DR. F. C. HOTZ in the chair.

There were twenty-two members and visitors in attendance. Minutes of the last meeting were read and approved.

DR. GRADLE showed a patient whose case had been reported to the Society in April, 1895. At that time he was suffering from paralysis of some of the extrinsic muscles, but the condition was improving under moderate doses of iodid of potash. There had never been any syphilitic history, or any reason to believe that syphilis was a factor in the case. Iodid was continued all through the summer in larger doses, and toward the fall all the symptoms had disappeared with the exception of increased knee jerk and an unnatural gait. At present the only symptom is that in extreme excursion of the eyes in any direction there is nystagmus and a rapid shaking of the head in the plane of the excursion, also a slight lagophthalmus in the left eye with a twitching of the orbicularis. The iodid had been stopped last fall and inunctions were tried, but after a few applications a violent stomatitis started up and the mercury was stopped. About a week after this stomatitis had subsided, the field to the right was hazy, although the perimeter showed no contraction. A few days later the patient complained of poor vision in both eyes. Although the test card showed normal vision, still the reading of letters was very slow and difficult instead of rapid and easy as heretofore. The accommodation also was somewhat diminished. In November the iodid was started again in large doses, and these symptoms disappeared. Shortly before Christmas vision in the left eye was nearly lost; color vision entirely gone. There were at no time any ophthalmoscopic appearances. Since Christmas the vision in the left eye has improved. Dr. Gradle thinks that the recent attack is probably one of retro-bulbar neuritis now improving.

DR. WOOD examined the case and thought that the nystagmus resembled that which we see in practically normal eyes on extreme excursions to the side, or up or down.

DR. TILLEY suggested that possibly the condition of the nose might explain the symptoms.

DR. HOTZ was inclined to think that a central lesion was present.

DR. GRADLE said that the original paralysis of the extrinsic muscles must undoubtedly have been nuclear, but that the recent affection of the left eye, as far as he knew, could only be some trouble with the nerve between the bulb and the chiasm.

The next business was the election of officers. Dr. H. Gradle was elected President; Dr. C. D. Wescott, Vice-President; Dr. Pinckard, Secretary, and Drs. Hotz, Coleman and H. H. Brown, the Committee on Membership.

On motion, a committee was appointed by the Chair (the Secretary being one of the committee) to consider the advisability of any changes or additions to the By-Laws of the Society, governing all questions of membership, dues and procedure.

DRS. TILLEY and HALE were appointed to act with the Secretary on this committee.

Drs. E. T. Dickerman, C. E. Robertson, S. L. McCreight, T. A. Woodruff, and H. V. Würdemann, were elected members.

The report of the Treasurer showed a balance of $20.80.

On motion, the Secretary was instructed to cancel the assessment of Dr. H. Weir.

The application of Dr. H. J. Hornbogen, of Marquette, Mich., was read and referred to the Committee on Membership.

On motion, the Secretary was instructed to use the funds of the Society, if necessary, in order to complete the guarantee for the dinners.

DR. HOTZ then read

REPORT OF A CASE OF CILIARY NEUROSIS.

In November, 1887, Mr. L. S., aged 41, consulted him for recurrent attacks of pain in the right eye, the attacks coming on between 3 and 4 o'clock in the morning, usually lasting but a few minutes; sometimes, when severe, an hour. The pain resembled that from a foreign body under the eyelid, attended with great photophobia and profuse lachrymation, with an edema of the upper lid and injection of the conjunctiva. The vision was always blurred by an attack and continued so for a short time. The attacks had lasted for some nine years. Sometimes he was free from them for several months; at other times he had one every night for a week or more. During the free intervals vision was clear. Ten years ago his left eye had been enucleated by Dr. Reuling, who stated to Dr. Hotz that the left eye at that time had been lost from irido-choroiditis in childhood, and that there were some symptoms of sympathetic trouble in the right. The healing of the left eye after enucleation was rapid and normal. Vision at that time with a correcting cylinder was normal in the right eye. Dr. Hotz laid considerable stress on this report as showing beyond doubt that ciliary neuralgia was present in the right eye at that time. Mr. S., however, ascribes all his trouble to a scratch on the cornea inflicted by a child about a year after the enucleation. Dr. Hotz was not inclined to place so much importance on this circumstance; however, unquestionably slight corneal wounds have often caused very troublesome neuralgic pains, but they do not as a rule last as long as in this case. There has never been any increase of pressure; pupillary action normal, vitreous clear and fundus normal. No tenderness on pressure. At that examination he thought he could see by a focal light a very minute gray line in the cornea. These paroxysms of pain being rather regular in appearance, quinin suggested itself as a remedy, and for the first week after its use the eye was free from pain. It then returned, and quinin has never had any effect since. Cocain, however, gave temporary relief. In January, 1889, all constitutional treatment was discontinued and the eye put under the influence of atropin. For a week again the eye was free from pain, but it returned. During this week the refraction was retested and a glass $-.75\bigcirc+1.50$ ax. 90°, vision normal. The doctor believed that this discovery was of great importance in causing ciliary trouble, but again his hopes were shattered, for in spite of the constant use of the correct lens the attacks returned. In February, 1889, Mr. S. went to New York and consulted Dr. Grüning, who found the eye free from all irritation, but the enucleation scar in the left eye somewhat irritated, and operated on that. The wound healed very kindly, but the patient reported in March that the pains had returned. After April, 1889, the patient was not seen again until January, 1892, when he stated that from May until October of 1890, he had been comparatively free from pain, but that lately they had become more frequent again, and whereas formerly the pain was confined to the eyeball, it now extended over the whole right side of the head. The attacks occurred at the same time, between 3 and 4 in the morning, with the other symptoms about the same. Between January and July of 1892, antipyrin, salicylate of sodium, iodid of potash and mercurials were tried, also the continued use of atropin for six weeks, but the

attacks continued just the same. In July the patient was examined by Dr. Beard, who thought that the retinal arteries were quite small and the veins easily pulsated, and suggested that the patient's heart, which was irritable, might play some part in the case, and that he cease smoking, which he did for six months without any relief.

In August Dr. Hotz received a message to visit the patient at his house. All the night before he had been suffering from incessant pain in the eye and right side of the head, and cocain had been given with very little relief. Dr. Hotz found the upper lid very edematous, the eye very red, sensitive to touch, and the epithelium of the whole lower half of the cornea was hazy and separated from Bowman's membrane in a large bleb. Atropin was instilled, bandage applied, and in five days the eye completely recovered from this attack. Again, in October, a similar attack of keratitis bullosa occurred, involving again the lower half of the cornea. During the winter of 1893 the attacks of pain continued, and in the spring and summer of 1894 they were more frequent, but seldom severe. The vision has been repeatedly tested in from six to eight hours after an attack, and the same result always obtained. Unquestionably the dimness of vision occurring after the attacks was due to a spasmodic contraction of the ciliary muscle, because the vision was always normal with an additional weak concave lens or the use of atropin. The question of diagnosis lies between cyclitis, glaucoma, and pure ciliary neurosis. Glaucoma has never been shown in any way in the case. Cyclitis could hardly have existed for so long a period without leaving some permanent changes in the eye. Probably the case is a pure ciliary neurosis. In the literature the only cases similar to this reported are by Dr. Samelsohn in Graefe's Archives for 1875. In that article a number of cases are quoted and the cause ascribed to vasomotor changes.

Dr. Gradle had seen this patient both before and after he had been under Dr. Hotz's treatment. He first saw him in 1880 and had him under observation until 1887. He agreed with Dr. Hotz's description of the symptoms, and had also tried the remedies that Dr. Hotz had used. In addition he had thought at one time that the trouble was aggravated by the condition of the nose and cauterized the turbinate and septum for catarrhal trouble, but without any effect on the neurosis. He next saw him in 1894, when he was still in practically the same condition as before he left him. In September of 1894 he returned again for treatment, the attacks being more frequent. Salicylic acid internally at that time seemed to lessen the severity of the attacks somewhat. At Dr. Gradle's suggestion the patient began to keep a record of the attacks, dividing them into four degrees of severity, and making weekly records of the number and violence of the attacks. Dr. Gradle thought that pilocarpin might be of benefit, and it was tried with considerable relief. Eserin had an unhappy effect on the patient, and that was tried and shortly discontinued. Dr. Gradle believes that the pain is due to irritation of a nerve fiber in this scar, or an irritation in the course of the nerve, although he had never been able to see the scar since a year after the injury.

Dr. Holmes suggested that latent gout might be a cause, but Dr. Hotz said that colchicum had been tried without benefit.

Dr. Tilley thought that empyema of the antrum would account for the symptoms, and spoke of a case where the symptoms were relieved by the antrum being drained.

Dr. Colburn saw one case in which repeated attacks of keratitis bullosa were followed by blindness from opacity in the cornea, and the globe was enucleated for pain.

The Society adjourned by limitation.

C. P. Pinckard, Secretary.

103 State Street.

SELECTIONS.

The Craig Colony of New York State.—The Craig Colony for Epileptics was opened January 20, by the preparation of quarters for thirty patients. These will be selected by Dr. Hoyt, of the State Board of Charities, being geographically distributed. Later, others will be received from county almshouses, until the full list of 200 is reached. Applications from all over the United States are received, even from other countries, Canada, South America, Russia and Asia. The object of this admirable undertaking is well stated in an editorial in the *American Practitioner*, for November 16, as follows: "The object of the colony is to provide for the four great needs of these unfortunates: 1. To give them schools where they may be educated as other children and young people are. 2. To afford them industrial training in any sort of occupation they may desire to follow. 3. To provide those epileptics a home to whom all other doors are closed. 4. To treat every case of epilepsy according to the best known scientific methods." The writer also makes the following comments on the grand scope of the work: "The idea of forming colonies for persons suffering with chronic incurable diseases is not new, for the leprous have been colonized since early times; but in this and similar instances the sick were segregated for the benefit of the well, and not out of any special regard for the former. The extension of the practice for the good of the afflicted is purely humanitarian and the natural outgrowth of the spirit of altruism which now pervades christendom. There can be no question that epileptics can be be better managed and more successfully treated in institutions devoted to the purpose than at home or in the public hospitals and dispensaries; but private institutions can avail the poor nothing, and they are compelled to drag out a wretched existence, handicapped by a cruel disease, shunned by their neighbors, and neglected, through ignorance or necessity, by their kin. To such a State sanitarium or farm is indeed a godsend, nor is it to be forgotten that many who are able to pay for care and treatment would gladly escape into such a place from surroundings wherein their epileptic seizures are a perpetual source of mortification. The work is Christian, is humanitarian, is beneficent, and no argument is needed to commend it to the favor of every lover of his kind. It is stated that Massachusetts and Ohio are preparing to follow the lead of New York in this good work, and there can be little doubt that the other States will soon do likewise." Let it be remembered that while the colony will, no doubt, for all time bear the name of a worthy and charitable layman, the chief brunt of the laborious organizing work has been borne by a junior member of our profession, Dr. Frederick Peterson, of New York city. Dr. Peterson has been in practice about fifteen years, and during the latter half of that period has spared himself in no way in order to bring about the required legislation and appropriations and laying out of plans. It will be a perennial monument to his unselfish charity, although it will never bear his name. One of his first, if not the first, contributions on the subject of the colonization of epileptics, was a descriptive paper published in 1886, regarding the colony at Bielefeld in Westphalia, Rhenish Prussia, which began in 1867 with four patients. See also this Journal, Vol. xxv, page 598.

Erythropsia.—Dr. Myles Standish, in the *Boston Medical and Surgical Journal*, reviews a contribution by Dr. L. Fuchs in *Annales d'Oculistique*, September. That writer "noticed on climbing a high snow-covered mountain that when he entered a hut erected on the top, everything appeared red. This suggested a series of experiments which seemed to show that in order to elicit the erythropsia in the normal eye, it is necessary to expose it for some length of time to the glare of the snow upon which the sun is shining, and that this was still more quickly accomplished if cataract cases were exposed to a reflection of light from the snow. As a result of his experiments, he states that the erythropsia of normal eyes, as well as of eyes deprived of their lenses, is caused by dazzling, which need not be disagreeably strong, but must be of long duration. Exposure to sunlight reflected by snow is the most effective means of producing it. For most eyes, however, it is necessary that the dazzling shall take place high above the level of the sea, where the sunlight is stronger and also richer in short-waved rays. He found by trial that the phenomenon was produced on patients who had been operated on for cataract, without regard to elevation above the sea-level. He draws attention to the fact that the color of the erythropsia is exactly like the color of the retinal purple, also that the erythropsia is, as a rule, less pro-

nounced or entirely absent in the part of the field of vision which corresponds to the macula lutea, and thinks that by long exposure to strong light the retinal purple is bleached and the retina becomes uncolored, and that phenomenon is seen during the re-establishment of the retinal purple."

Contribution to the Study of Gelseminin.—The tincture of gelsemium and the fluid extract of gelsemium, both obtained from the root of the *Gelsemium Sempervirens*, have been rather neglected lately, on account of our ignorance of its active principles and their mode of action. A recent article in the *Pharm. Ztg.* of Nov. 18, 1895, describes the chemic character of pure gelseminin, and some of its compounds. The oxidation of gelseminin ($C_{22}H_{26}N_2O_3$), with permanganate of potassium results in a salt; the formula for its composition being $C_{15}H_{19}N_2O_3$. The quantity produced was so small that no further experiments were made with it. Separating under the influence of the hydrate of potash the iodomethylate of gelseminin produces the chlorhydrate of a volatile base, with the formula $E_{19}H_{22}NO_4HCl$; a salt (the chlorhydrate of gelseminin) with the formula $C_{21}H_{11}NHCl$; another salt with the formula $C_{16}H_{11}NHCl$; and a resinous substance composed as follows: $C_{16}H_{13}N$. This last substance, dried and pulverized, is a fine, very bitter powder. There is every reason to believe that this is an entirely new substance, having nothing in common with any other compound hitherto known possessing the same formula for its composition.—*Les Nouv. Remèdes*, Jan. 8, 1896.

A Stout String as an Obstetric Aid.—A physician writes to the *Rev. de Ther.*, November, 1895, describing the assistance he derives from a stout string about a meter and a half long, in his obstetric practice. The patient placed in the usual position with the forceps in place, the physician seats himself on rather a low chair in front, as if to make an examination with the speculum. The string has a loop on one end which he fastens to the left handle of the forceps. It is then carried across to the right handle, making a figure 8, two or three times repeated. Then the string is passed from left to right behind the physician's back, brought around and fastened to the right handle. By bracing against the string around his loins, the physician can control the forceps while his hands are left free to guide it, moving it up or down, to right or left, simply by twisting his body a little on the chair. With ordinary care this use of a string is a great advantage, but in careless hands it might do damage. The string must be the diameter of a penholder to insure its not breaking.—*La Province Médicale*, January 4.

Splenopexis; Operation for Wandering Spleen.—The treatment of wandering spleen by artificially fastening it to the parietal peritoneum is an operation of comparatively recent date. Since Rydygier showed that the extirpation of the spleen is not so entirely without significance for the organism, the attempt has been made to proceed with more conservatism. Konwer describes in the *Nederl. tijdschr. v. Gen.* 1895, No. 15, a case treated by him, in which he made an opening as if to remove the kidney, and manipulating the spleen through the abdomen, he pressed it down opposite the opening, where it was held in place with cotton pads and tight bandages. An attempt to sew it failed, but the operation resulted successfully without this, and four years have passed since, without a relapse. The spleen was not restored to its former place, but Konwer thinks this is immaterial, as long as it does not interfere with any other organ. Similar treatment failed in another case, as the bandages had to be laid aside the sixth day to arrest occlusion of the intestines.—*Centralblatt für Chir.* January 10.

Prejudice Against New Treatment for Hypertrophied Prostate.—Dr. Englisch recently delivered an address on the subject of the treatment of hypertrophy of the prostate gland before the k. k. Ges. of Vienna Physicians, in which he reviewed the whole subject and asserted that there was not a single case on record of complications following the operation of castration for this purpose. Wherever there was trouble it was traced directly to previous abnormal conditions. He dwelt at length upon the disinclination of patients to submit to castration, and remarked that the method of suppressing the functions of the testicles by tying the vas deferens seems to have a more promising future before it than the former method. In the discussion that followed Dr. Dittel asserted that it might be accepted that this tying operation would have the same effect as castration upon the relations existing between the testicles and the prostate gland.—*Wiener klin. Rundschau*, Jan. 5, 1896.

The Role of Chlorin in Narcotic Poisons, Especially in Acetone.—There is no relation between the narcotic power and the amount of chlorin in those compounds in which the hydrogen has been replaced by chlorin, bromin or iodin. We are obliged to admit that their hypnotic properties depend on the energy with which the halogen is retained, or the ease with which it is liberated. This explains the notable difference in narcotic power between the chlorid of ethylene and the chlorid of ethyl. After dwelling upon this fact, Kossa describes in the *Ung. Arch. f. Med.*, 1895, Nos. 3 and 4, the effect of a recent compound, acetone chloroform, or as the same writer calls it trichlorpseudobutyl-alcohol. Administered hypodermically to rabbits it produces sleep very soon. Given to persons through the mouth, in a dose from 0gr.8 to 1gr.3, it produces an agreeable slumber, with no noticeable disturbance of the heart or respiration.—*Les Nouv. Remèdes*, Jan. 8, 1896.

Experimental Researches on the Physiologic Effect of Anemonin.—Anemonin usually comes in the form of orthorhombic crystals, with an odor *sui generis*; it dissolves very little in water, alcohol or ether. Repeated experiments with it on rabbits, frogs, guinea-pigs and dogs, show that it is a slow poison, the first indications of which are drowsiness followed by paralysis, and terminating in convulsions. The torpor is evidently due to the physico-chemic action of the drug on the brain. The anemonin commences by affecting the brain and does not act upon the spinal cord until later. The intensity of the convulsions varies; sometimes they are merely isolated spasms. Death is produced by the cessation of respiration, the muscles losing completely their contractility.—*Brit. Med. Jour.*, Nov. 2, 1895. Reviewed in *Les Nouv. Remèdes*, Jan. 8, 1896.

Congenital Hydrocephalus with No Clinical Manifestations until Adult Manhood.—The *Gazz. degli Osp. e. Clin.* of Jan. 4, 1896, contains a detailed study of a typical case of congenital hydrocephalus which did not reveal its presence until late in life. The patient was a clerk, an Italian, of fair average mental development and no bad habits, with no apparent physical defects except an affection of the left eye, which finally lost its sight. In his twenty-third year he was suddenly and violently attacked with vomiting, vertigo, cephalalgia and other symptoms which gradually grew worse, until there was the combination that is the unmistakable picture of congenital hydrocephalus. Death ensued at 34 years of age. At first it was very difficult to differentiate the case, but as time passed, all doubts vanished, and the autopsy confirmed the original diagnosis.

Elimination Through the Stomach.—Experiments have been made recently on healthy dogs to determine what substances find their way into the stomach when introduced into the system by rectal or hypodermic injection. The alkaloids discovered in the vomit withdrawn mechanically from the stomach were morphin, brucin, veratrin, caffein and quinin. There was absence of atropin and apomorphin. Other substances found were salicylic acid and antipyrin. Phenic acid was not eliminated by the stomach. Still other substances noticed were chloroform, chloral hydrate, methyl alcohol, ethyl alcohol and acetone. The methyl alcohol was administered in a rectal injection. It was mostly eliminated in the urine the day after the injection. These substances found their way into the stomach through the blood in some cases, but Grützner's recent experiments show that there is an antiperistaltic action of the bowels to which may be due the presence in the stomach of some of the substances introduced into the rectum.—*Schmidt's Jahrbch.*, 1895, No. 11; reviewed in *Les Nouv. Remèdes*, Jan. 8, 1896.

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SATURDAY, FEBRUARY 22, 1896.

SANITARY LIMITATIONS.

The development of hygiene as a department of medicine is the prominent professional characteristic of this age. From a scarcely tolerated subsidiary to physiology or medical jurisprudence in a few schools, it has risen to become an important chair in all colleges of the highest standing. Health associations, health boards and health journals abound, and that which was itself only a subordinate study, has been the parent of another as abstruse and difficult as any of the older branches in medical science. Bacteriology alone is a special object of research, and works treating of it have the proportions and intricacies of old text-books. The public health is the refrain in the periodical professional literature; and the office of the practitioner to medicine would appear to be menaced as a sinecure.

Nevertheless, the insanitary doings of the people go on, and they continue to defy the unselfish counsels that aim to banish disease and death. Is this significant of the hopelessness of the task? Does it suggest that there are limitations to sanitary effort, which it is idle to hope to surmount?

A single illustration suffices. It ought to be manifest to the simplest intelligence that fresh air, free air, and sunlight are essentials to healthy development and vigor of body. Barbarous races demonstrate that fact by their lusty frames and their freedom from the morbific pests of civilization, yet not alone the lower classes of our great cities, but their wealthy and educated inhabitants as well are equally indifferent to the truth that to breathe fresh air and live in the sunshine are more potent invigorators than apothecaries' stuffs at a dollar a bottle. The faces of the throngs in the street cars of our great cities, hurrying to and from their daily occupations, bear the evidence of race degeneracy in their pallid or sallow complexions. The ruddiness of the Anglo-Saxon is disappearing, chiefly because these people pass the greater portion of their lives in rooms, in which direct sunlight rarely enters. The apartment-house system is attaining appalling dimensions, as in New York City, where even suites, which rent for a thousand dollars a year or more, have as their prominent feature dark interior bedrooms, opening upon wells, into which the rays of the sun can never penetrate. With attractive approaches and entrances from the street, elevators and decorated drawing-rooms, there coexist small chambers, with windows facing blank brick walls, near enough to be touched, six or seven stories high. The occupants of the lower apartments breathe only the stagnant air at the bottom of the narrow space (well) outside their windows, yet apartments of this sort are not only readily rented, but when rented are further obstructed and darkened by superfluous hangings. The ignorance or indifference of even wealthy lessees is shown by one instance of many in view, of a suite of rooms on the second floor of a most expensive establishment, occupied by a family in affluent circumstances. All the windows face north and are closed with heavy inner and outer curtains, thus even excluding the sun's rays reflected from the houses on the opposite side of the street, ever burning gas lights supplying the illumination necessary to prevent stumbling over the multitudinous articles of furniture, which encroach upon the air space, and only evidence the purchasing ability of the occupant. Even greater folly than this is that of the owner and resident of a large brownstone house on the northeast corner of a splendid avenue, the length of the house having an unobstructed southern exposure on a street running east and west. In this wide surface are spaces for twenty-one windows, *fourteen* of which are blind, having been filled in by brownstone slabs, leaving only the indicated sites of windows as designed by the architect. Sanitary teaching is idle adressed to such a person. The pallid, shivering, ill-developed children are only weighted more and more by furs and heavy wraps. Only a day or two ago, the writer entered a cable-car crowded to the point of stifling, and aroused the ire of the passengers by opening an overhead ventilator near him; and two ladies, expensively clad, conspicuously drew their capes around their shoulders and moved their seats at the first opportunity. What, then, can be expected from the hordes of the tenement houses, who find stupifying warmth in their sealed doors, when the rich and presumably intelligent themselves violate the warnings of the sanitarian? Owners and architects will continue building long rows of dark, ill-ventilated apartments, which the necessities and indifference of tenants

cause them to occupy, with the certain physical impairment of the children to be born and reared in their dim, murky interiors.

Perhaps a more glaring disregard of sanitary considerations is that exhibited in the street cars of all our cities, by the tolerance of the expectorator, who voids a mess as disgusting as a vomit on the floors of vehicles used by the public. It is amazing that no serious effort has been made to put a stop to the abominable, offensive practice. Men, well dressed, with intelligent faces and apparently aware of the proprieties of life, do not hesitate to discharge upon the floor the viscid accumulations of saliva, mucus and pus in full view of their fellow passengers to besmear the skirts of the young girl or woman who next occupies the seat. It has been possible in a crowded cosmopolitan city like Paris to absolutely prevent the practice. In every tram car and omnibus a placard is conspicuously displayed, bearing the words: *Il est interdit par mesure d'hygiène de cracher sur le parquet* (It is forbidden as a hygienic measure to spit upon the floor). Why should it not be just as possible in our own communities, where the communicability of tuberculosis through the medium of dried sputa is known to every newspaper reader, and where there are health boards whose duty is to prevent the spread of this disease by the direct transference of the foul mess of tobacco juice, saliva and morbific expectoration to the underclothing of innocent women? If this is not done it must be admitted that sanitary endeavor in America finds a limitation wherever a car fare may be obtained from a creature whose habits are no matter how disgusting and obnoxious, and that provisions for the public welfare are impracticable if wealthy corporations negative them. There can be no better missionary service than to preach the gospel of cleanliness and godliness to the enriched directors of street railways, who are as criminal in their indifference to this one provision of public decency and public health as the builders of unsanitary dwellings or the venders of unwholesome food. A league of zealous, determined men and women could profitably serve both God and man by removing at least this one existing limitation to the sanitarian's work.

THE PATHOLOGY AND ETIOLOGY OF THE DISEASES OF THE ACCESSORY CAVITIES OF THE NOSE.

Our knowledge of the morbid processes in the accessory nasal cavities is very limited. The inaccessibility of these places is no doubt largely responsible for this fact. To ZUCKERKANDL, the anatomist, belongs the credit of having directed attention to the diseases of these cavities by the publication of the well-known "Normal and Pathological Anatomy of the Nose and its Pneumatic Appendages," in which are found many illustrations of interesting morbid processes. A very important step in advancing the range of observations concerning the anatomic changes in these spaces was introduced by HARKE,[1] who devised a practical method of gaining access to the interior of the nose and adjacent cavities during post-mortem examinations without any disfigurement of the face of cadaver. HARKE'S method consists, in brief, of the following steps: After removing the brain in the ordinary method the soft parts are reflected anteriorly down to the root of the nose, posteriorly down below the foramen magnum. Then the floor of the skull is divided in the median line by means of a keyhole saw from the nasal bones in front to the occipital foramen behind, keeping as nearly as possible to the median line. Now the two halves of the skull are separated by means of a broad chisel and mallet, and as the nasal and pharyngeal cavities come into view, the pieces of mucous membrane may be cut across with the knife or scissors so as to prevent further tearing. With the hammer and chisel the axis may be divided. The two halves of the skull are still connected by the nasal bones, the maxillary process of the upper jaw and the palate; strong traction will separate these bony connections without injury to the soft parts, and the lateral halves of the skull will yield sufficiently to allow inspection down to the vocal cords. The partitions between the accessory cavities are readily cut away with scissors.

By means of this method HARKE examined some four hundred noses, and his "Contributions to the Pathology and Therapy of the Upper Respiratory Passages"[2] forms a very valuable addition to ZUCKERKANDL'S work.

In order to study more closely the relations of general affections to the pathologic processes in the nasal accessory cavites as well as the histologic changes of the mucous membranes of the latter and the nature of the etiologic agents at work in their inflammatory diseases FRÆNKEL,[3] of Hamburg, made a systematic and broad examination of these localities in a large number of autopsies. Among fifty cases examined exclusively for the purpose of showing whether the normal mucous membrane of the accessory cavities of the nose is free from bacteria or not, FRÆNKEL found only twenty-eight to be available for this purpose, *i. e.*, normal, and of these twenty-eight only thirteen were completely sterile. The remaining fifteen showed microörganisms to be present most often in the antrum of Highmore (eleven times), then in the frontal sinuses (six times), and least often in the sphenoidal sinuses (five times). Without going into complete details it may be said that the following microbes were found in the order of frequency in which they are named: The diplococcus lanceolatus, the yellow pus coccus, an organism morphologically like the bacillus diphtheriæ, the

[1] Virchow's Arch., Bd. 125, Heft 2.
[2] Wiesbaden, 1895.
[3] Virchow's Archiv, Bd. 143, Heft 1.

bacillus coli communis, and two hitherto undescribed bacilli. The diplococcus lanceolatus was found oftener than the others in each of the cavities; it was frequently single but also in company with some of the other microbes named, most often with the pus cocci. From the results of this phase of his studies FRÆNKEL concludes that in a large number of normal accessory nasal cavities there occur microörganisms which, we know, play an essential rôle in the inflammatory processes of the respiratory tract. In 40 per cent. (sixty-three cases) of the post-mortem examinations of the nasal cavities there were morbid changes present. In thirty-seven cases the process was limited to a single cavity. The antrum of Highmore thirty times (right seventeen, left thirteen), and the sphenoidal sinuses seven times. In eighteen cases two cavities were involved at the same time, both antra of Highmore seven times, one sphenoidal sinus and antrum of Highmore eight times, both sphenoidal sinuses once, one sphenoidal sinus and one frontal sinus once, and frontal sinus and antrum of Highmore once. In six cases three cavities, and in one case four, and in one case all six accessory cavities were involved. The general result may consequently be said to show that the antrum of Highmore furnishes by far the largest contingent of cases of disease of the accessory nasal cavities, then comes the sphenoidal sinuses while the frotal sinuses furnish but a small number of cases. Systematic examinations like this are the only means that would lead to any definite information concerning the relative frequency of disease in these various centers mentioned.

In regard to the nature of the pathologic processes present FRÆNKEL found that inflammatory or exudative changes are by far the most frequent. The exudate may be serous, mucous, muco-purulent, purulent or sanguinous. The quantity is variable. In quite a number of the cases the mucous membrane contained cysts which most likely were due to retention. ZUCKERKANDL[4] doubted the ability of the mucous membrane of the antrum of Highmore to form pseudo-membrane, but one observation of FRÆNKEL's shows that it may form fibrinous false membrane. The histologic changes in the mucous membrane most frequently present were those more or less characteristic of inflammation. The microbe most frequently found in the diseased cavities was, again, the diplococcus lanceolatus, quite frequently in association with other germs, especially the pus microbes. Various members of the latter group were also found alone. Once the influenza bacillus was demonstrated to be present, the cause of death being pneumonia in the course of influenza. The colon bacillus was found once. A bacillus mucosus capsulatus, FRÆNKEL, hitherto undescribed, was also found in a few cases. The action of these various microörganisms is inconstant and the character of the changes present does not allow any inference as to the kind of infection at hand. The same microbe may cause different forms of disease.

Among the general conclusions arrived at by FRÆNKEL may be mentioned that these accessory cavities of the nose are so frequently the seat of disease that more attention must be paid to their condition than has hitherto been done. Suppurative processes in any of these cavities always form a menace to the health and life of the individual. Both HARKE[5] and FRÆNKEL call our attention to the fact that in atrophic and marasmic children it is not unusual to find chronic suppuration in the antrum of Highmore that might be regarded as the source of a chronic intoxication. FRÆNKEL has also observed a case in which a chronic empyema of the frontal sinuses was followed by thrombo-phlebitis of the longitudinal sinus and consecutive pyemia. In general infectious diseases as, for instance, fibrinous pneumonia inflammatory conditions of secondary origin may arise in the nasal accessory cavities, which may become chronic and in turn act deleteriously upon the whole body. While ZUCKERKANDL[6] regards the diseases of the accessory cavities as oftener secondary to nasal affections HARKE and FRÆNKEL both conclude that in the main the acute inflammations of the accessory cavities are entirely independent of the affections of the nose proper. It is a significant fact in support of this view that FRÆNKEL in his investigations found only nine cases of disease in the main nasal cavity and that in five of these the mucous membrane of the accessory cavities was normal. It is also a quite general belief that the most frequent cause of empyema of the antrum of Highmore is the extension of morbid processes connected with the teeth or their alveoli. This view is upheld by ZUCKERKANDL. HARKE and FRÆNKEL both find, however, that the frequency of the dental origin of inflammation in the maxillary sinuses has been greatly overestimated. Out of all his cases FRÆNKEL found only two in which the process in the antrum could be referred to the teeth. FRÆNKEL consequently makes the general statement that in the majority of instances inflammation of the maxillary sinuses develops independently of pathologic changes in the neighborhood and that certain general diseases play a much more important part in its pathogenesis than has been assumed. These anatomic studies also seem to show that the relation of nasal polypi and of inflammatory swellings of the infundibulum to the diseases of the antrum is the reverse of the usual teachings in so far as no evidence has been brought forward that polypi and the like are secondary to disease in the antrum, which is the view usually held by the clinicians. Finally, attention is also directed to

[4] Loc. cit.

[5] Loc. cit. [6] Loc. cit.

the fact that the inflammations in the mucous membranes of the accessory nasal cavities do not seem to give rise to lesions of the bones unless specific processes like tuberculosis, syphilis, or leprosy are present. A correct understanding of the etiologic and anatomic factors and conditions will undoubtedly be of the greatest benefit in the treatment and the prophylaxis of the morbid processes that have been referred to. When the interest of the specialists and of clinicians in general in these common forms of disease in the accessory cavities of the nose has been awakened by such comprehensive investigations as those of HARKE and of FRÆNKEL, there can be no doubt but that much will be brought to light that will be of importance in the symptomatology and early diagnosis of these affections.

HOSPITAL CORPS EQUIPMENT AND DRILL.

During the past week two orders have been published by the War Department bearing on the equipment and efficiency of the hospital corps. One of these orders provides that when detached for service in the field during Indian wars, or when left with the sick and wounded under circumstances which justify the expectation that their rights as non-combatants under the Geneva Convention will not be recognized, commanding officers will issue to members of the hospital corps revolvers or other available fire-arms. The meaning of this is obvious, to afford them the means of protecting themselves and the wounded under their care. It affects the equipment of the men under certain conditions of active service; but the sentence which follows will be regarded by many as containing the essence of the order: "With these exceptions no side arms will be issued to members of the hospital corps." This modifies their present equipment by removing the sword or saber of the non-commissioned officer, and the heavy knife worn by the men since the organization of the corps. The sword is not required by the hospital steward as a badge of authority. It is a useless relict of a former age and an encumbrance at all times, and particularly in the discharge of his duties to the sick and wounded, while the knife of the enlisted man, a cross between a Mexican machete and a sword bayonet, has been merely so much useless weight for him to carry on active service.

The second order referred to is one convening a board of officers to revise the drill regulations of the hospital corps. The board consists of MAJOR JOHN VAN R. HOFF, MAJOR VALERY HAVARD and CAPTAIN JULIAN M. CACELL, Medical Department, U. S. Army. All these officers have had much experience in the handling of hospital corps companies. It is understood, however, that no radical change in drill methods is intended, the main object of the revision being to bring the drill regulations into harmony with the litter and sling, model of 1895, recently approved by the Surgeon-General. The present regulations were prepared for a litter with an attached sling, but, in the model of 1895, the sling is an individual sling worn on the shoulders of the bearer, its looped ends merely requiring to be slipped on and off the handles of the litter in the various movements. The convention of this board does not mean that present drill methods are unsatisfactory, although no doubt the board will embody in its revision all the changes and improvements that several years of experience in the method have suggested as desirable.

CHILD STUDY.

There exists in the city of Chicago, and similar organizations can probably be found in other centers, a society for the promotion of child-study. While the leading idea of such study is undoubtedly psychologic, the subject is suggestive in a medical point of view, and may well be worth an editorial comment in a journal that only deals with psychologic questions in their specially medical aspects and bearings.

There is no period in life when mental and physical development is as rapid as in childhood, and therefore there is none more interesting in a physiologic as well as in a psychologic point of view. Physicians have studied children in their pathologic peculiarities; pediatrics is a recognized medical specialty, but it is a reasonable question whether it might not be as well to widen its scope and take into it some attention to the unfolding of the intellectual life in its beginnings. The skilled medical practitioner can better than anyone else first take note of and point out the way of correcting the morbid traits and tendencies that lead to physical and mental degeneracy, he can study and estimate the hereditary influences and advise how they are to be met, and can instruct the mother in what should be the most fascinating pursuit of her life, the proper method of studying the development of her offspring. These are the possibilities of his profession; we do not say they are generally or even often realized.

Considering, however, only the physical side of the question of child study, it is not a credit to our profession that while the studies of the growth and the physical data of childhood are being taken up by laymen and educators it should be in any degree behind them in the same line of investigation. While physiologists were ahead of psychologists in recognizing the value of knowledge of the earliest developmental processes and conditions in the study of functions, it seems now that the newer school of psychologists, enlightened by the data of physiology, may in their turn put practical medicine under obligations for important facts and deductions. Sometimes they may be on the wrong track, or on one that is uncertain, but they are always suggestive and instructive in their modern methods.

The practical value of child-study should be evident to anyone. The old saying that "as the twig is bent, the tree is inclined," so often quoted with a moral application, has a physical and intellectual appropriateness as well. Hence every real acquisition of fact or legitimate theory in regard to the bodily or mental development of children has its value, and there is an ample store of such facts yet to be acquired. At the present time we may take, for example, the theories of mental and bodily degeneracy that are just now so much to the fore, and it is easy to see that they can only be proven or disproven by taking into consideration the earlier conditions of the individual and the influences that affected his development. The question as to the existence of such a type as the "born criminal" is, as might be inferred from the term itself, one that can only be settled by the study of the development and beginnings as well as the finished type; in short, by a study of the morbid tendencies and moral development of the child. As an almost purely medical line of investigation, and not the least important may be mentioned that of heredity in children, which can hardly be studied by anyone so well as by the general practitioner—the family physician. GALTON has laid down a plan for this line of research in his "Natural Inheritance" that is at least worthy of some consideration. The amount of valuable facts and statistics that could be obtained from a general interest in this study in the medical profession can hardly be over-estimated. Other interesting questions are some of those of the origin of insanity, especially those forms that seem to be more or less dependent upon errors of education and training and management of developmental periods, and here the well directed attention to the facts of early life will be found to be productive of valuable results. It is not meant to be understood that these questions are neglected by physicians, but more systematic study of all the stages of early human development is needed to fully elucidate them.

It is noteworthy that this whole subject of child-study is comparatively of modern development. If we look over the bibliography as given in the report of the Commissioner of Education for 1892 and 1893, just issued from the Government press, we find comparatively few works dating back more than twenty years, and most of the papers bearing directly on the subject have appeared within the last decade. While it is likely to continue to be for the most part a specialty of educators and psychologists, it is to be hoped that our profession will not too much neglect the special opportunities it has in this particular direction.

A special telegram to the JOURNAL from DR. R. HARVEY REED informs us the Practice of Medicine Act passed the Ohio State Senate February 19. The quacks will now have to "move on." The medical profession of Ohio are to be congratulated.

CORRESPONDENCE.

"Nine Years of Diphtheria."

To the Editor:—The JOURNAL of February 15 contains a remarkable article with the above title. If you will allow me sufficient space I would like to call attention to some of its remarkable statements.

1. The author has used the serum treatment in a series of nearly three hundred cases, both as a curative and a preventive agent *during the past year.*

2. In December, 1894, the disease appeared in its *most malignant form* and has *continued ever since.*

3. During September and October of one year *he treated 123 cases without a death.*

4. Since Jan. 1, 1895, he has treated fifty-seven cases varying from the *most malignant* to moderately severe cases, *none having been mild*; there were two deaths with fifty-five recoveries, a mortality of *less than 4 per cent.*

The remainder of the article contains many extravagant statements equal to the foregoing but I have not the time to devote to them. After reading the article referred to, curiosity led me to make some investigations. By referring to a map of Indiana I noticed that the city of Vevay, Ind., was situated on the Ohio River, about midway between Louisville and Cincinnati; that the county in which city is situated is not marred by a single mile of railroad; that its only communication with the outside world was by way of the Ohio River; that it was one of the oldest settlements in the State; that the population of the city in 1880 was *1,884*, in 1890 it was *1,663;* that it has no children's hospital or general hospital, except an orphanage and poor asylum. So the statistics of the article must be made up from cases in private practice. Vevay is credited with seven other physicians than the author of the article in question.

Now as to statement No. 1. Three hundred inoculations in one year; this is more than one-sixth of the entire population. Surely the Doctor must have a formidable grip on that community if more than one-sixth of all ages combined resort to him for curative and preventive inoculations; possibly the Doctor holds his patronage by inoculation! (Other doctors take warning.) In these 300 cases he has used from 200 to 4,500 units (Behring) each injection and has repeated 200 to 600 units every six hours as required. For a town of 1,663 inhabitants Vevay is the boss market for antitoxin. Possibly this may account for the scarcity of Behring's antitoxin in Berlin.

Statement No. 2. Malignant diphtheria existing in a city of 1,663 for an entire year is quite a reflection on the local Board of Health, to say the least. Reference to the records of the State Board of Health will possibly define the character of this long-continued epidemic; and as Dr. D. has saved three hundred what have the other seven physicians been doing?

Statement No. 3. One hundred and twenty-three cases treated during the months of September and October without a death. Over sixty cases a month, in private practice, in a city of 1,663 inhabitants, and seven other physicians to hear from. We will take it for granted that the seven were not very busy, but it must have made Dr. D. hump himself to attend to that many cases of diphtheria in addition to his other patients. This was called a mild epidemic but no doubt as to the diagnosis is entertained; the writer of the article did not say, but we infer that he made a bacteriologic test in every case, and confirmed the diagnosis, for he makes the statement that the discovery of the *Löffler-Klebs bacillus* has forever settled the controversy and we are satisfied he wished to be exact. These 123 cases, we suppose, antedated antitoxin in his practice.

Statement No. 4. Fifty-seven cases in one year with two deaths, under the use of antitoxin. (Seven other physicians

still to hear from.) Enthusiasts often make extravagant claims for any treatment that is new, but Dr. D. has had better success than any writer of my acquaintance, and I am sure he deserves it all for he seems to have pinned his faith to serum-therapy alone, and such devotion will assuredly be rewarded. Serum-therapy, still in its infancy, has burdens enough of its own to bear; it seems a pity that it should be loaded down by one of its supposed friends by an article in its behalf as illogical, unreasonable, unscientific and misleading as the one above referred to.

In the State of Indiana, reports of contagious diseases are required by law. Did Dr. D. make said reports and are they safely on file in the Health Office for future reference, or is the Doctor liable to fine for failure to report them? Such valuable statistics should not be lost. I am somewhat surprised that the JOURNAL admitted the article to its columns. CRITIC.

Abortion Legalized.

CLINTON, IOWA, Feb. 12, 1896.

To the Editor:—It is of interest to us to be posted on the laws and decisions that relate to the profession. A respectable woman of this city called on a female practitioner stating that she had a babe five months old and was again pregnant, and very earnestly desired to be relieved of it. A soft catheter was introduced by a director or sound. The director was withdrawn and the catheter was left behind. After waiting seven or eight days as was proved, the "doctress" called on a medical man telling him she had introduced a soft catheter into a woman's uterus and could not get it out. He told her it would undoubtedly be expelled; if not, to dilate the os and reach for it with a pair of placenta forceps, that he lent her.

In the evening she returned saying she was in trouble and wished him to see the woman. He called at the house and on examination found a length of intestine protruding from the vulva, bearing the marks of the forceps. The patient said she had indured the torments of the damned for a week. The doctor at once called in three other physicians and as soon as convenient made a section, opening the abdomen, finding the catheter among the intestines with abundant signs of inflammation. The uterus was *cut* through in several places by a curette, through one of which the intestine had been drawn. The woman did not rally from the operation. The coroner was called; the "doctress" acknowledged the introduction of the instrument, with intent. The verdict was rendered accordingly. Prosecution followed, for malpractice and murder. Being a woman, by a quibble of the law she was admitted to bail. After passing over several terms the case came up for trial. All the facts were proved. Witness for the defense testified that it was done at the woman's urgent request and that due care and diligence had been taken afterward. Counsel for the defense asked the several witnesses if such was not their practice; this was of course overruled, but the benefit of the doubt was put before the jury.

The Judge charged, that if they found the act done in contravention of the law, they were to convict; that if it was done with good intent and that due diligence and care had been used according to the best of her ability they could modify their verdict. The jury retired and on first count stood ten for acquittal. After being out for several hours the refractory ones came over and a verdict was returned of not guilty.

The courtroom was so crowded with women during the trial that the door was closed shutting many of them out. The sentiment among them was that the prosecuting witnesses were addicted to the same practice and were actuated by malice or envy. Mr. Tait was quoted, as having heard that rupture of a diseased uterus had taken place spontaneously. After the trial an autograph letter of Tait was published in the local papers thanking some one for reporting a case of spontaneous rupture of a uterus.

It seems to us that this lets down the bars and gives a quasi-legal sanction to the practice. To our credit, however, we may add that the "female practitioner" was not a graduate but had received a license from the State Board of Health of Iowa.

Very truly yours, M.D.

Diphtheritic Treatment.

ST. PAUL, NEB., Feb. 14, 1896.

To the Editor:—In the JOURNAL of Feb. 1, 1896, we notice an extract from the *New York Medical Journal*, entitled "Diphtheria *sine* Antitoxin," credited to Dr. O. B. Douglas. We read this short article with much interest, as it seems to be very nearly a concise reproduction, in meaning at least, of a paper contributed by myself on the treatment of diphtheria, to the *Southwestern Medical Gazette* for March, 1887, from which the following is quoted. In speaking of the local application of irritants such as tinc. ferri chlorid, we said: "In the first place we get the irritating effect on the diphtheritic abraded surfaces of the fauces and pharynx, which is anything but desirable, as it aggravates the inflammation by its constringent and irritative properties." "I have used locally a very mild gargle or spray of glycerin, carbolic acid and rosewater." "To sum up: My success I have attributed to the use of aconite and belladonna. Their use has been kept up for from one to four days and governed by the urgent symptoms." "The use of aconite in diphtheria will to many appear as a gross error, but when we consider its many desirable properties, as the lowering of temperature, relieving the engorgement of a part by dilating all blood vessels, thus subduing congestion and inflammation, that it is a great eliminant both of liquids and solids (probably in that way acting as a specific in diphtheria by eliminating the poison), and that its depressing effects are overcome by belladonna, its efficacious use seems to me very rational." "Alcoholic stimulants injudiciously administered in diphtheria, is a very routine practice, yet given in appropriate doses at the proper time, great good may be achieved by their use. In the early stages I venture to say that nine cases out of ten are better off without any stimulants."

Since the above was written we have employed this treatment in upward of six hundred cases, in what was clinically proved diphtheria, with the best possible results. Indeed, the mortality has been so low when the patients were seen early that the use of antitoxin would almost seem superfluous.

While we still employ the aconite-belladonna treatment, yet we must beg to differ with Dr. Douglas. We are thoroughly "converted" to the "faith" in antidiphtheritic serum. Cases in our hands, bacteriologically proved diphtheritic, brought under the influence of this agent, do certainly become convalescent in half the usual time required under any other form of treatment. To my mind, judging from clinical observation, the treatment of diphtheria to-day, *without* the use of a reliable serum, can not be too highly censured both from a medical and a humane standpoint. O. GROTHAN, M.D.

The Character of the Anti-Vivisectionist.

CINCINNATI, OHIO, Feb. 15, 1896.

To the Editor:—Among your comments on the vivisection bill of Mr. McMillan, on p. 297 of the issue of the JOURNAL of February 8, you make use of the following language:

"In the absence of knowledge of the subject, no one should chide these good hearted men and women, etc.," (no need to quote the remainder). Now my dear doctor, the "good book" (both versions) contains the following passage, "Fools rush in where angels fear to tread," in line with this statement is the fact of experience that ignorance will criticise, while knowledge is weighing evidence. It is also a known fact that an exaggerated idea of the specific individuals, qualifications and *ego*, is the prompter for the rendition of *judgment* by that individual, who

thinks what he or she *thinks*, is necessarily *law*. It is a well-established principle of justice, and common sense as well, that evidence shall precede a verdict, and when we refrain from "chiding" those who reverse the order, we are guilty, at least, "after the fact." I have paid considerable attention to the matter, and my personal experience has shown me that those individuals who deprecate harsh measures with poor "Lo," are in every case, people who are intimately acquainted with the "Leatherstockings" of the novelist, but who have not even a slight acquaintance with a veritable copperskin except as civilized temporarily, for dime museum purposes; and that the most active in behalf of suffering hearts, find no time for efforts in behalf of suffering humanity. There are exceptions possibly, but the above may be formulated in a general law. Why individuals who are intensely humane in one direction are equally cruel in others is a question not difficult to answer, but is not germane to the present subject. True advancement has ever been retarded by the "snap judgment" of the ill-informed, especially those who have a smattering of technicalities and consider them the science. People who offer judgment upon matters which have not been fully considered by them as to *pros* and *cons*, should not only be *chidden*, but forcibly sat down upon in *all* cases. *All* persons are "laymen" with regard to any point of which they have not made a definite study, whether it concerns medicine, or political economy, or any other subject, and it is the constant attempt made by many proficient in *one* matter to assume the judicial ermine as to *all* matters, which retards the spread of real truth. The foregoing is my "say so" and I presume that having said it, the rest of the world will accept, and keep on judging as usual.

Yours truly,

J. WINCHELL FORBES.

1128 Locust Street, Walnut Hill.

BOOK NOTICES.

The Year-book of Treatment for 1896. A Critical Review for Practitioners of Medicine and Surgery. 12mo, 476 pages. Cloth, $1.50. Philadelphia: Lea Brothers & Co., Publishers. 1896.

This is the twelfth issue of this annual, and it represents the work of twenty-five well-known English contributors, who have culled from contemporaneous medical literature the material for the volume, which thus constitutes a pretty fair epitome of the medical writing of the year.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. Third edition, enlarged and thoroughly revised. 12mo, 492 pages, with 98 illustrations, of which 17 are colored. Cloth, $2.50. Philadelphia: Lea Brothers & Co., Publishers.

In our notice of the second edition of this book (see this JOURNAL, Oct. 6, 1894), we took occasion to say that it was "in every way worthy of the success it had met with, and is destined to become a general favorite."

The edition now before us is gratifying evidence of the correctness of the judgment then expressed. It has been brought quite up to date, and will doubtless retain its popularity with students. We commend it as a trustworthy guide.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia College, New York. Vol. IV, for the collegiate year 1894-1895. Reprints.

Dr. Prudden states in the preface to the volume, that "it has seemed to us that by this form of publication—first the wider circulation which current medical journals afford and the subsequent grouping together of reprints—the aims of such varied studies are more certainly accomplished than they would be by a special departmental or college publication."

Our readers will we are sure agree with Dr. Prudden in his views, and feel that they are the gainers by the prompt transmission through the medical press of the conclusions of the laboratory experiments. Those wishing to preserve them separately have the opportunity. The volume is well illustrated.

Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1894. Washington: Government Printing Office. 1895.

This report, which is handsomely illustrated, details the operations of the Service for the year ended June, 1894, and conveys the usual professional information contained in the necropsy reports, and the carefully compiled statistical tables which have constituted a valuable feature of these reports for many years. The operations of the quarantine service for the period mentioned are fully set forth, and the continued evolution of that branch of the Service is manifested in the voluminous reports and regulations reprinted in this volume.

As these operations passed into history nearly two years ago, it is not practicable here to discuss situations which no longer exist, or which may long ago have been modified by changes in regulations. As a contribution to the governmental history of the year 1894, the report is an extremely interesting one.

Transactions of the American Surgical Association. Volume XIII. Edited by DEFOREST WILLARD, A.M., Ph.D., M.D., Recorder of the Association. Royal 8vo, cl., pp. 516. Philadelphia: William J. Dornan. 1895.

This volume contains, beside the address of President Dennis, articles by Drs. Gerrish, Homans, Connor, Wight, McGuire, Gerster, White, Mears, Gay, Weir, Deaver and Frese, Carmalt, Sayre, Roberts, Bradford, Park, Mastin, Wharton; Burrell, Packard, Fenger, Weeks, Norris, Mixter, Elliot, MacCormac, Hart, Souchon, Richardson and Bryant, names sufficiently well-known to insure the excellent quality of the essays. The report of the Committee on Necrology includes biographical sketches of the late Prof. William T. Briggs, of Nashville, Prof. Albert B. Miles, of New Orleans, Professor Thiersch, of Leipzig, Mr. A. E. Durham, of London, and Prof. Aristide A. S. Verneuil, of Paris.

The volume is handsomely printed and a worthy companion to its predecessors. The next meeting of the Association will be held at Detroit May 26, 1896, under the presidency of Dr. Tiffany, of Baltimore.

Syphilis in the Middle Ages and in Modern Times. By DR. F. BURET, Paris, France. Translated from the French, with notes, by A. H. OHMANN-DUMESNIL, M.D., Professor of Dermatology and Syphilology in the Marion Sims College of Medicine; Consulting Dermatologist to the St. Louis City Hospital, to the St. Louis Female Hospital; Physician for Cutaneous Diseases to the Alexian Brothers' Hospital; Dermatologist to Pius Hospital, to the Rebekah Hospital, to the St. Louis Polyclinic and Emergency Hospital, etc. Being Volumes II and III of "Syphilis To-day and Among the Ancients," complete in three volumes. 12mo, 300 pages. Extra cloth, $1.50 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street; Chicago: 9 Lakeside Building.

The interesting historical study begun by Dr. Buret in volume I is continued in volumes II and III here completed. The painstaking labor has comprised an examination of all literature of the subject, and we can well believe, as the author states, three years were consumed in the compilation of the first volume alone.

Dr. Dumesnil has very lucidly and accurately translated the work and thereby laid his countrymen under a permanent obligation. We notice an error in spelling the name of Paulus Ægineta on page 3, and repeated twice on page 5.

The material which Dr. Buret has offered as evidence to prove the pre-Columbian existence of syphilis in Europe, can not all be accepted as evidence, but he has produced more than enough that is conclusive, to prove his postulate. After the publication of the manuscripts and documents now unearthed by the author there can no longer be any doubt of the greater antiquity of syphilis on the continent of Europe than old John Astruc was willing to allow it.

Color Vision and Color Blindness. A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS, M.D. (Univ. Penna.) ormerly Clinical Assistant Royal London Ophthalmic Hospital, Moorfields; Lecturer on Ophthalmoscopy and Chief of the Eye Clinic in the Beaumont Hospital Medical College; Ophthalmic and Aural Surgeon to the St. Louis Mullanphy and Methodist Deaconess Hospitals; Consulting Oculist to the Missouri, Kansas and Texas Railway System; Fellow of the British Laryngological and Rhinological Association; Secretary of the St. Louis Medical Society. Illustrated with One Colored Full-page Plate and Twenty-one Photo-engravings. Crown 8vo, 110 pages. Cloth, $1 net. Philadelphia: The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street; Chicago: 9 Lakeside Building.

This book contains ten chapters as follows: 1, Historical Sketch; 2, Physiological Anatomy of the Retina; 3, Physics of Light-color Sensations; 4, Theories of Color Perception; 5, Color Blindness; 6, Methods for Detecting Color Blindness; 7, Pseudo-isochromatic Tests, Contrast Tests, Special Tests; 8, Acquired Color Blindness; 9, Pennsylvania Railway Company's Instructions; 10, Oliver's Tests, and General Remarks.

The book applies exclusively to railway employés, but it does not touch upon the subject of its enforcement by the Treasury Department of the Government, nor are the statistics of the Public Service, although easily accessible, touched upon. So far as its scope extends, the book is an excellent one and will be of use to all railway surgeons.

Transactions of the New Hampshire Medical Society at the one Hundred and Fourth Anniversary, held at Concord June 3 and 4, 1895. Concord, N. H. Printed by the Republican Press Association.

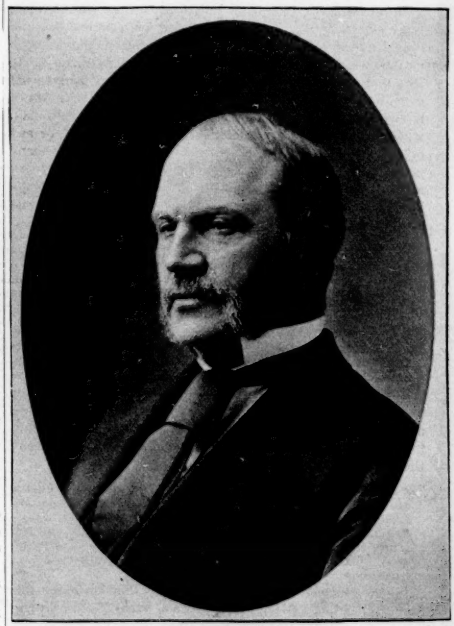
One of the important functions of the medical society now-a-days is the cultivation of the art of public speaking, and if our readers are in any doubt about the ability of the physician as an after-dinner speaker, let him make a collection of the post-prandial gems that emanate from the different members of our profession while in reunion at the annual society dinners, and he will be convinced that there are none more able than our doctors. But the annual dinner is not only productive of oratory, but of good fellowship, and it strengthens the ties of professional *camaraderie* by those of social sympathy. The publication of the remarks made at these reunions, naturally stimulates one's pride in his profession, and leads to stronger attachment to one's medical society than if the bald terms of science were alone used, and the dry topics of tedious experiments alone considered. The beer is stale without its froth, and the scientist without humor or sociability is like an icicle, which one may indeed admire, but only at a distance. Moreover, a pleasant manner and air of freedom from care increases the power of the scientist over the people who are otherwise prone to vote him always a bore, and perhaps at times an ass as well.

We were led into these reflections on reading the excellent speeches printed in the New Hampshire Transactions for 1895. And the many valuable scientific papers printed in the book are not one whit less instructive because an account of the annual dinner is included.

NECROLOGY.

DR. CORNELIUS GEORGE COMEGYS died at his residence, 524 West Seventh Street, Cincinnati, February 10, at 1 o'clock A.M., after an illness of one month of la grippe complicated with nephritis. From his autobiography as printed in the "Physicians and Surgeons of America," we learn that Dr. Comegys was born July 23, 1816, in Cherbourg, the family estate in Kent County, Delaware. He was a descendent of a German-Holland family that was naturalized in Kent County, Maryland, in 1673—being a son of Cornelius Parsons Comegys, Lieutenant Colonel of State troops in the War of 1812, and Governor of Delaware, 1838-41. His mother, Hannah, was a daughter of John Marim, a soldier in the Revolution; his brother, Joseph Parsons Comegys, LL.D., was Chief Justice of Delaware, 1876-92; also a United States Senator, 1856. Benjamin Bartus Comegys, LL.D., is President of the Philadelphia National Bank and a trustee of the Girard estate. Dr. Comegys was educated chiefly in the Dover Academy. He began life as a teacher in a district school; then he went to Indianapolis, Ind., for employment in the United States Engineer Corps, constructing the National road to St. Louis; at length he became Cashier-clerk in the State Bank of Indiana, removed to Lawrenceburg to become a cashier; finally took part in a large flouring manufactory; this proving disastrous, he resolved to abandon a business life and study medicine, his original purpose. In the meanwhile he had studied chemistry, physics, astronomy, geology, psychology and political economy. He removed to Philadelphia and matriculated in the University of Pennsylvania, Department of Medicine, under the preceptorship of W. E. Horner, professor of anatomy and dean of the medical department. He took two winter courses and one summer course—daily clinics in the college and Pennsylvania Hospital, and a course of French under Delacroix; was graduated in March, 1848, and began practice in Philadelphia. In the latter part of the year he located in Cincinnati.

After the epidemic of cholera in 1849, in which he took a



most active part and attended a large share of cases, he went to Europe to complete his education. He there attended Guy's Hospital under Cooper, Addison, Golding, Bird, Gull and Oldham. While in Paris he was associated with Charcot, Andral, Velpeau, Trousseau, Rostan, Nélaton and Dubois. On his return to Cincinnati in 1852, he gave a course in anatomy in the College of Physicians and Surgeons, then joined in the organization of the Miami Medical College as professor of the institutes of medicine, and continued until the fusion with the Ohio Medical College in 1857, where he was allotted the same chair, and, additionally, clinical teacher in the medical staff of the Cincinnati Hospital, at that time under the control of the Medical College of Ohio. He resigned his chair in the college in 1869, but retained his hospital position for over thirty-five years, and for the past seven years has been President of the staff. It was at his suggestion that the department of pathology was created by the board. He also proposed a system of bedside instruction in all the departments, to small groups of advanced students. He was one of the founders of the Academy of Medicine and twice served as President; was a mem-

ber of the old Medico-Chirurgical and the Cincinnati Medical Society; he was a member of the AMERICAN MEDICAL ASSOCIATION, of the Mississippi Valley Medical Association, honorary member of the Philadelphia College of Physicians, of the Delaware State Medical Society, of the Western Reserve Historical Society of Ohio, the Ohio Historical and Philosophical Society and the Cincinnati Literary Club. His chief publications are translations of Renouard's "History of Medicine," 1855; Charcot's "System Diseases of the Spinal Cord," 1881. His medical papers have been numerous, among which are: "Conservative Value of Fever and Inflammation." "Transactions of the Cincinnati Medico-Chirurgical Society," 1849; "Etiology and Treatment of Phthisis Pulmonalis," "Transactions of the Ohio Medical Society," referred to in the American edition of Watson's "Practice of Medicine," and in Copeland's "Medical Dictionary," "The Pathology and Treatment of Asiatic Cholera," 1866, Blackman and Parvin's Cincinnati *Medical Journal*; address before the Alumni Society of the University of Pennsylvania, 1875, published by the society. He maintained the necessity of reform in medical education in the line of entrance examinations, a longer period of instruction, especially for clinical study and laboratory work, which, he has been assured, promoted the adoption of the great forward movement which has distinguished the course of the universities since 1875; he proposed at the same time the encouragement of the practice by physicians of forensic medicine, which he argued would secure a higher form of judicial decisions and serve to advance the medical profession to higher rank and usefulness in the State. After the battle of Fort Donnelson and Shiloh he volunteered his services and had charge of the boats fitted up for the relief of the sick and wounded.

His most conspicuous work of the past two years was as Chairman of the Special Committee of the AMERICAN MEDICAL ASSOCIATION to secure an act of Congress for the creation of a Department and Secretary of Public Health on a parity with other departments of the Government. He married in 1839, Miss Rebecca, daughter of Governor Tiffin, the first Governor of Ohio and United States Senator. Their children are: Edward Tiffin, A.M., M.D., Major and Surgeon in the United States Army; William H., M.D., Major in the pay department of the United States Army; Charles George, B.S., B.A., practicing law in this city; Ellen Tiffin and Mary Porter Comegys.

In the death of Dr. Comegys the profession has lost a most beloved and respected member, the city of Cincinnati a most valued citizen, and the younger element of the medical profession a staunch supporter. Dr. Comegys was a man who could always be relied upon to fight for the right and his constant and enthusiastic endeavors were to elevate the profession of medicine to the highest possible standard from both an ethical and scientific standpoint. Dr. Comegys belonged to the real school of chivalry and was, under all circumstances, a gentleman; his helping hand was always extended to assist the poor and the young man who was ambitious and endowed with noble principles. He was one of the giants of our time and he died in harness, for up to the day of his being stricken he was at his work and keeping abreast of the progress of the science of medicine with as much vim and familiarity with all discoveries and theories as the most ardent worker among the rising generation. In the sick room Dr. Comegys was the dignified and comforting visitor whose presence shed light to the clouded brain, encouragement to the disconsolate; peace to the troubled; and benefit to the afflicted, and his expressions of hope and comfort to the one who was crossing the dark river were like rays of sunshine appearing through the deepest gloom. The Cincinnati Academy of Medicine held a special meeting February 11, and adopted the following resolutions upon the death of Dr. Comegys:

The medical profession is assembled to-day to express a last word in memory of their late associate, Dr. C. G. Comegys.

He was no ordinary man. For forty-eight years he has been a notable figure, not only in his profession, but as a citizen of pure life, of honest purposes, serving the public faithfully and with great ability in various positions.

In all of his relations with us, his professional brethren, he was a gentleman, moved by the spirit of doing unto others as he would have them do to him. He detested everything that savored of the empiric.

A man of gentle, liberal spirit, he was charitable and forgiving. He was, indeed, the friend of his profession, esteeming its object to prevent disease and to do good to all. He was the friend of young men, and by his words of encouragement and his example did much to aid them. Yes, he did much to elevate the tone of the profession in this city.

Dr. Comegys was a man of superior intellect. He fully exemplified the fact that the strong physician is one whose mind is not "cabbined, cribbed or confined" by strictly technical and professional reading, but is enlarged by all collateral studies and observation. He very early achieved a prominent place as a practitioner. He was a sound counselor, a good clinician, a clear lecturer and teacher. He was the advocate of higher education for the people and for medical students. He did much by word and deed to further this great object.

He believed his profession in its ability do good mentally, morally and physically, superior to any other. He often spoke of the power of the good, able physician.

He originated the idea of having a Board of Health created by Congress, whose head should be a physician and a Cabinet officer. His idea will yet take form. He advocated that physicians should be representatives of the people in Congress and the State Legislatures. [redacted]

A man of deep religious convictions, and yet charitable to all, he was dominated by the spirit of walking humbly and acting mercifully, serving Him whom he regarded as his Master and Saviour. He did not believe that it is all of life to live or all of death to die.

He belonged to the time when the general practitioner was not only the medical advisor, but the counselor and friend of his clients. There were giants in those days. Up to a few weeks before his death our departed friend showed the ability and superiority of the general practitioner.

He is an example for every young struggling man. His honesty, his high tone, his noble purposes, his usefulness, should impress his memory on all. Let us cherish it.

[Signed] JOHN A. MURPHY,
B. P. GOODE,
WM. H. TAYLOR,
JOSEPH EICHBERG.

PROF. JOSEPH JONES.—As we go to press we learn with deep regret of the death of Prof. Joseph Jones, M.D., LL.D., of New Orleans, which occurred February 17.

LEMON WILLARD CLARK, M.D., of Elkhart, Ind., died from apoplexy, February 8. He was born August 1, 1858, and was graduated from Rush Medical College Feb. 21, 1882. He was an active member of the medical societies to which he belonged.

LOUIS Y. WIGGINS, M.D., a veteran physician of Newburg, N. Y., died at that town on February 10, aged 70 years. He was graduated in medicine at the New York University Medical Department, in the class of 1847. He was for a number of years a practitioner of New York city, but for forty years of his professional life he was a popular and successful practitioner of the town above mentioned.

T. H. ELLIS, M.D., of Butte City, Mont., February 1.——Reuben F. Dyer, M.D., of Ottawa, Ill., January 31, aged 62.——F. McClelland, M.D., of Cedar Rapids, Iowa, February 13, aged 66. He was editor of the Cedar Rapids *Times*.——John W. Taylor, M.D., of Shelbyville, Ky., February 8, aged 70.——John W. Kerr, M.D., of Allegheny, Pa., February 9, aged 41.——Daniel Dennison Slade, M.D., of Boston, Mass., February 11, aged 72. He was graduated from Harvard College in 1844, and from the Medical School in 1848; he was Professor of Zoölogy, and at the time of his death was lecturer on comparative osteology.——J. M. Maloney, M.D., of Allegheny, Pa., February 12, aged 52.——Benjamin Corneille, M.D., of Trempealeau, Wis., aged 29. He was graduated from the Detroit Medical College in 1892.——J. L. Phythian, M.D., of Newport, Ky., February 12. He was born in Johnstown, Pa., in 1833. In 1852 he was graduated from the University of Louisville, and began the practice of medicine in Frankfort until the beginning of the civil war. During the war he was Surgeon-in-Chief of the hospital at Frankfort, and after the war he was appointed Post Surgeon of the United States Barracks at Newport, Ky. He held that position for several years, and was retired in 1873.

PUBLIC HEALTH.

Department of Health of Brooklyn.—On February 1, Dr. Z. Taylor Emery took office, for a second term of two years, as the Commissioner of Health of Brooklyn, N. Y. He renominated for his Deputy Commissioner Dr. R. M. Wyckoff, for Register and Secretary Dr. George E. West, and for the Chief of the Bureau of Contagious Diseases Dr. Frederic A. Jewett, for Chief Bacteriologist Dr. Ezra H. Wilson, and for Medical Superintendent of the Department Hospital Dr. A. S. Ambler, Experts in Infectious Diseases Drs. Morton and Duryea.

Changes in South Dakota Board of Health Law.—In 1895 the Legislature of South Dakota enacted a new board of health law. The State board of health is to consist of five members, all of whom shall be resident physicians in good standing, their term of office to be five years, and their appointment to be made by the Governor. It is to meet on the first day of May and November of each year, and at such other times as it shall deem necessary. Its powers are the same as provided by the act of 1891, so far as pertains to the public health, but it is relieved from likewise looking after the protection of the domestic animals of the State. In counties where there are no resident physicians, so that county boards of health can be formed therein, the State board of health is authorized to provide for such county boards under such rules and regulations as it may deem proper.

The Sanitary Management of Floors and Floor Coverings.—The editor of the *British Medical Journal* has recently treated of the dangers of household dust, and especially of the improper management of carpets. His line of argument is quoted in the following extract:

To those who know the true inwardness of things, the sight of a housemaid brushing a dusty carpet is suggestive of many evils. The death of Pasteur has reminded the world of what is constantly present in the thoughts of medical men, namely, that while microörganisms are the great producers of disease, dust is the great carrier of microörganisms. Now that we know these things, now that we understand that in the quiet hours of night the germ-laden dust settles down upon the floor, it is distressing to find how little our knowledge is put to practical use, and to see old customs still unchanged, old habits which we know to be destructive carried on, and to find the housemaid on her knees, with her brush and dustpan stirring up dust to the detriment of everyone, and breathing germ-laden particles to her own destruction. It needs but a small amount of common sense to see that if carpets must continue, a thing greatly to be deprecated, they should be rubbed with a damp cloth rather than brushed, and that if, in deference to prejudice, they must be brushed, this should be done by a covered American sweeper with plenty of damp tea leaves. Of all ways of removing dirt from a carpet the worst is by the use of the ordinary short brush, which involves the housemaid's kneeling down in the midst of the dust which she so needlessly creates, and drawing it into her lungs with every breath. For ordinary household use something like linoleum, something which can be washed with a wet cloth every morning, would seem to be the best covering for floors; but if carpets must be, and if it is impossible to teach the present generation the evils of seeking present comfort at the expense of future risks, at least let us remember that carpets may be washed even where they lie; that, till the day of washing comes, a closed sweeper is far better than a brush, and that the worst form of brush is one with a short handle.

Pennsylvania Bureau of Health for Cities of Second Class.—A bureau of health in the department of public safety in cities of the second class was created by the legislature of Pennsylvania in 1895. The law requires it to remove all things imperiling health; provides a penalty for doing anything tending to endanger health; prohibits placing unsound or offensive matter in street, alley or lot; requires dead animals to be removed within six hours; prohibits rendering or trying out except under certain conditions; provides for abatement of nuisances; prescribes how privies shall be constructed and cleaned; authorizes confiscation of tainted or decayed meats offered for sale, and forbids exposure for sale of decayed or unwholesome vegetables or matter or things; regulates sale of milk; provides that bones, dead animals, etc., shall be hauled in tightly covered wagons, which must not stand on any public street longer than fifteen minutes. The officers of the bureau of health are to carry out these provisions. When the bureau of health shall have reason to believe from the report in writing of any reputable physician practicing in the city that any person therein is afflicted with any contagious disease dangerous to the community it may forbid and prevent all communication with the infected house or family, except by means of physicians, nurses or messengers to convey the necessary advice, medicines and provisions to the afflicted person or persons, and exercise all such other powers as the circumstances of the case shall require, and as shall in the judgment of the bureau be most conducive to the public good, with the least private injury. The physician of the bureau is, among other things, to keep a supply of vaccine virus, and see that all persons, so far as possible, are properly vaccinated, and to report to the bureau all cases in which any sick person has not been properly cared for. Variola or varioloid is to be placarded as "smallpox," and diphtheritic or membraneous croup as "diphtheria." All persons refusing or neglecting to obey an order of the bureau to be vaccinated shall be liable to a fine of from $5 to $25. A register of marriages, births and deaths is to be kept, also of physicians, midwives, undertakers and superintendents or sextons of cemeteries. Certificates of death are to be made by attending physician, and also by coroner when the case comes under his notice. A permit to remove a corpse for any purpose must be obtained. Physicians and midwives must keep record of and report births.

Health Reports.—The following health reports have been received in the office of the Supervising Surgeon-General Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Connecticut: Middletown, February 11, 1 case.
Louisiana: New Orleans, February 1 to 8, 9 cases.
Michigan: Detroit, February 8 to 15, 4 cases, 1 death; Saginaw, Riga Township, February 1 to 8, smallpox reported present.
Tennessee: Fayette County, January 1 to 31, 1 case; Memphis, January 1 to 31, 21 cases, February 8 to 15, 1 case; Obion County, January 1 to 31, 2 cases; Shelby County, January 1 to 31, 35 cases.

SMALLPOX—FOREIGN.

Corunna, January 4 to 18, 3 deaths.
Guayaquil, December 28 to January 31, 18 deaths.
Montevideo, December 21 to 28, 5 cases.
Naples, December 26 to January 31, 68 cases, 45 deaths.
Odessa, January 18 to February 1, 3 cases, 3 deaths.
Pernambuco, November 1 to 15, 87 cases, 28 deaths.
Prague, December 28 to January 4, 22 cases.
Rio de Janeiro, January 11 to 18, 32 deaths.
Trieste, December 29 to 31, 3 cases.
Warsaw, January 18 to 25, 1 death.

CHOLERA—FOREIGN.

Calcutta, December 28 to January 11, 77 deaths.
Bombay, January 14 to 21, 2 deaths.

YELLOW FEVER—FOREIGN.

Pernambuco, November 1 to 15, 8 cases, 4 deaths.
Rio de Janeiro, January 11 to 18, 137 deaths.

ASSOCIATION NEWS.

Section on Neurology and Medical Jurisprudence—Announcement.—The work of the Section on Neurology and Medical Jurisprudence at the coming meeting of the AMERICAN MEDICAL ASSOCIATION at Atlanta, promises to be of unusual interest. The desire has been quite generally expressed to have discussions upon the following topics:

The Etiology of Insanity.
Expert Medical Testimony in Disputed Mental Cases.
Medical Aspects of Crime.

It is believed that these topics have a special medical interest at this time, and papers dealing with any phase of these subjects will be very welcome. An urgent invitation is extended to all members, whether they are expecting to be in attendance or not, to present papers and records of cases that have a bearing upon the topics mentioned, or upon any other Neurological or Medico-Legal subject.

Any persons who expect to contribute papers or reports to this Section will greatly facilitate the business of the Section by writing at once to the Chairman,

T. D. CROTHERS, M.D., Hartford, Conn.

or to the Secretary,

W. J. HERDMAN, M.D., Ann Arbor, Mich.

SOCIETY NEWS.

Sacramento Society for Medical Improvement.—At a regular meeting of the Sacramento Society for Medical Improvement, held Jan. 21, 1896, the following preamble and resolutions were adopted, and copies ordered sent to the medical journals and to medical societies in general, in order to obtain concerted action on the part of the profession:

WHEREAS, The New York Life Insurance Company and the Equitable Life Assurance Society have recently adopted a graded scale of fees for medical examinations, the practical effect of which will be a reduction of the Medical Examiner's income from these sources by about 40 per cent.; and whereas, these companies, claiming to be amongst the largest and strongest in the world, have, hitherto, in common with all other first-class "old line" life insurance companies, paid a uniform fee of $5 for medical examinations, insisting that the same care be used in examining applicants for small as for large policies; and whereas, under the proposed schedule, no reduction is made in the amount of work performed or in the degree of responsibility exacted: therefore be it

Resolved, That we, as physicians, recognize that all life insurance is based on mortality tables and on the probable life expectancy of the assured, in striving at which the Medical Examiner is the most important factor, and that in the past he has been the most valuable as well as the most essential feature in the establishment of life insurance companies.

Resolved, That we can not recognize, as a principle governing our remuneration for exactly similar services, the amount of premium paid by the applicant, or the profit derived by the company from any individual risk.

Resolved, That such methods, having no foundation in reason or justice, are contrary to all business principles, and must inevitably lead to a lower standard of examinations with correspondingly disastrous results.

Resolved, That the Sacramento Society for Medical Improvement protests against methods that are unfair, irrational, and indefensible, and on behalf of its members, pledges them to absolutely decline to examine applicants for life insurance for any "old line" company, for any fee less than $5, for each and every examination made.

Resolved, That copies of these resolutions be transmitted to every medical society in California, to all State medical societies, and to the AMERICAN MEDICAL ASSOCIATION, requesting that concerted action be taken in the premises.

THOS. W. HUNTINGTON, Chairman.
W. J. HANNA,
JAMES H. PARKINSON.

The Society believes that success can only be attained through agitation and organized opposition, so that this movement, now confined to two life insurance organizations, may not be adopted by all the "old line" life companies. In forwarding these resolutions, the Society asks you to give the matter the widest publicity, and to, as far as possible, procure similar action on the part of medical societies in your vicinity. J. A. NELSON,
J. H. PARKINSON,
Sacramento, Cal., Jan. 25, 1896. Committee.

Michigan State Medical Society Committee on Organization.—The following circular letter has been addressed to all State medical societies:

GRAND RAPIDS, MICH., Feb. 4, 1896.

Dear Sir:—At the last meeting of the Michigan State Medical Society a committee (of which I am Secretary) was appointed to consider means relative to promoting more complete or systematic organization of the medical profession throughout the country. In accordance with the request of the committee, I ask you to read carefully the enclosed "Address," and to present the subject, by means of the "Synopsis," to your State Society. Our committee earnestly desires that some concert of action may be had in the matter, and to that end takes the liberty of urging you to use all proper means to have a committee appointed, whose duty it shall be to confer, by letter or in person, with similar committees from other State societies, for the purpose of formulating some plan that may be presented for adoption by the State societies next year. Please let me hear from you at your earliest convenience.

Very respectfully, R. J. KIRKLAND.

1. Every local society, in good standing, shall be a part of the State Society, and under its government.

2. Every State Society shall be part of the National Society.

3. No local society shall be represented in the National organization except through its State Society.

4. A man joining his local society becomes, by that one act, a member of the State and National societies, and can join such societies in no other way. In this way the local society would guard the avenues of entrance.

5. To the annual dues demanded by and payable to the local society, would be added $3 for the State, and $5 for the National organization, and would entitle the member to the transactions of both.

6. The degree of "Fellow of the American Medical Association" should be created, and every man qualified to join his local society would be entitled be bear this degree.

7. In the National Society should be formed an Executive Board (from the Presidents of the State societies, or otherwise) which should, among other duties, exercise supervision over the various State societies. And in the State Society a similar board which should exercise a similar jurisdiction over the local societies.

According to this plan a man can join the State and National societies only by being accepted by the local society, where he is known. Thus fewer unworthy men would gain entrance to our National Society. By the payment of $10 and signing such constitution as may be required, the member would be entitled to the transactions of both his State Society and the National organization, and to write himself "Fellow of the American Medical Association."

The Wayne County (Mich.) Medical Society at its regular meeting, Thursday evening, January 30, met in the Cadillac Hotel, where Frank T. Lodge, M.A., Professor of Medical Jurisprudence of the Michigan College of Medicine and Surgery, read a very interesting paper on, "Insanity, its Relation to Crimes, Contracts and Wills." Insanity was defined in its various phases, and Mr. Lodge showed how the law differed from medicine in the application of the term insanity, and how it addressed itself to the mind and not to the body; that almost anyone was able to make a will, even if they were not able to make a contract. In making a contract it required the application of two minds; there was force against force. In the making of wills this is not the case. If it can be shown that the desire of the person's life points to the manner of his making his will, the court will sustain the will, and as a result comparatively few wills are broken. Upon the other hand, if the lines were too tightly drawn, few people would be permitted to make wills and have them stand; as when old age came on, peculiarities would be manifested, and when sickness invaded the body, the patient would oftentimes be unconscious of his surroundings. The object of judges in constructing wills is to ascertain the testator's real intentions, and if these correspond with his individuality in life, the will would stand. Every court in constructing a contract, first endeavors to ascertain when, and upon what subjects the minds of the contracting parties met; the object of a jury in a criminal court is to ascertain, whether the accused had the evil intention of committing the crime with which he is charged. The object of equity and elastic rules of chancery procedure is to overturn the rigid requirements of the law, to prove the fraud which misled the party and enslaved his mind. It can readily be seen how important in legal jurisprudence is this subject of insanity. The degree of mental capacity that is required of a man differs with the differing relations, and it is on account of these differences that so much uncertainty has arisen in the administration of the law. The degree of insanity is an important factor in fixing criminal responsibility. The mere fact that a person is insane does not relieve him from criminal responsibility. The insanity must have been such as to prevent the accused from distinguishing between right and wrong in a particular act. As a general rule insane persons are incapable of entering into valid contracts. A person who is so insane as to be incapable of entering into a valid contract concerning property can not enter into a valid contract of marriage. Mere weakness of understanding does not invalidate a marriage.

The paper was discussed by Drs. Kirker, Jenks, Inglis, Scurr, ex-Prosecuting Attorney S. W. Burroughs, and Judges Donovan and Chapin.

The Detroit Medical and Library Association at its regular meeting, Monday, January 27, heard a paper by Dr. James Sampson, of Windsor, Ont., entitled, "The Treatment of Renal Calculi." Before reading his paper, the doctor showed plans for a unique, modern hospital, one that could be erected in the down town parts of any city without endangering the surrounding inhabitants.

MISCELLANY.

Virchow Decorated.—The decoration of Commander of the Legion of Honor has been conferred upon Virchow by the President of the French Republic.

Pennsylvania New Pure Food Laws.—The Legislature of Pennsylvania passed laws in 1895 to provide against the adulteration of food and apple products, and another to prohibit the adulteration of milk by the addition of so-called preservatives.

Instruction for the Laity.—The Woman's Union of France has opened a course of free, public, evening lectures on the principles of hygiene and the care of the sick and injured in the family, on the street and on the battlefield, in fourteen different precincts of Paris.

German Congress of Internal Medicine.—Our German exchanges announce that the XIV. Congress of Internal Medicine will be held this year at Wiesbaden, April 8 to 11, with an exhibit of medical and surgical appliances in connection. The list of speakers contains some noted names. We notice one American on the list, Einhorn of New York.

Correction.—In the article by Dr. Christison on the "Normal Mind," printed in last week's issue, there was an omission in the plate p. 313 whereby the arrows leading from "fear" and "grief" to "anxiety" were omitted. If those interested will kindly draw the lines at the points indicated, the plate will more clearly show the author's intention.

The War in Cuba.—The scientific societies of Havana have suspended their meetings for the present, although their publications appear as usual. The anomalous and threatening conditions that prevail throughout the entire island are driving so many people away from the country that the present and future offer but a gloomy prospect to professional men.

Fecal Micro-organisms.—The Biological Society of Paris has been experimenting to determine the number of microörganisms expelled from the body under the influence of a purgative. A healthy subject who evacuated twelve billions on an average during the day, passed four hundred and eleven billions under the influence of a purgative which acted the same day. Succeeding days averaged only half a billion.

The Queen of Portugal.—The *Coimbra Medica* of January 10, denies the statement that has been going the rounds of the press to the effect that the Queen of Portugal has been studying medicine and lately received a diploma to practice. The report was probably based on the Queen's interest in various medical institutions, such as the Policlinic, the Diphtheria Serum Service, etc., of which she is an influential and appreciative patroness.

Artificial Testicle.—Dr. Guelliot, of Reims, had a patient, one of whose testicles had been removed on account of tuberculosis some years before. The other was attacked in the same way, but the patient would not allow the operation unless an artificial testicle was provided in its place. Dr. Guelliot, after castration, introduced into the scrotum a wad of coarse, soft, sterilized silk (Leclerc's No. 4), and completed the suture as usual. The operation was successful.—*Revue Internat. de Méd. et de Chir.*, January 25.

Instantaneous Color Photography Discovered by Dr. Selle, of Brandenburg.—According to a cablegram to the New York *Herald*, a reported discovery by Dr. Selle, of Brandenburg, Germany, of a method whereby photographs in colors can be instantaneously obtained, is arousing great interest throughout Europe. Several patents, protecting methods for photographing colors, are already filed in Washington. All these patents, however, represent complex processes, while the great value of Selle's discovery lies in the fact that he obtains the same results from one instantaneous exposure.

Memorial to the late Surgeon Parke.—The editor of *Illustrated Africa* writes that "Henry M. Stanley and Lieutenant Jephson, surviving officer of the expedition for the relief of Emin Pasha, have caused to be placed in the church of Kilmore a memorial brass in affectionate memory of the late Surgeon Parke. He first served in Egypt with distinction, accompanying the Nile expedition for the relief of General Gordon in 1884–1885. This tablet is 'a tribute to his constant gentleness and care for the sick and suffering, and to the splendid services he rendered alike to Europeans and Africans during the three years' march across Africa.'"

Transposition of Viscera.—Dr. W. Gilman Thompson, professor at the University Medical College, New York City, recently exhibited a man, several of whose organs are transposed, before his class. This patient's heart, stomach and spleen are on the right side and his liver on the left. His lungs are also transposed. The man is perfectly healthy, is about 23 years old, and is a brakeman regularly employed on the Pennsylvania Railroad. He was ignorant of his own peculiarities until a year ago, when he was placed in a Philadelphia hospital; while there doctors informed him. Since then he has given a large share of his time to advancement of clinical teaching.

The Toxic Properties of Alcoholic Drinks Determined by Injecting Them into Rabbits.—Daremberg publishes the results of his experiments to determine the toxicity of alcoholic drinks, in the *Arch. de Méd. Experimentale* of November, 1895. He announces that the most poisonous of all are the liqueurs, such as absinthe, anisette, etc. The least injurious are the drinks made of the alcohol of commerce with non-toxic bouquets, without the addition of liqueurs or cordials. For the same proportion of alcohol, wines are more toxic than wine brandies, and wine brandies are more toxic than brandies made from a good quality of alcohol. Red wines are generally more toxic than white wines. Adulterated and spoiled wines are exceedingly toxic.—*Revue Internat. de Méd. et de Chir.*, January 25.

Insane Prisoner to be Removed to Asylum.—Provision was made by the legislature of Pennsylvania in 1895 for the more immediate relief, care and support of indigent insane persons committed on criminal charges less than felony. It is to the effect that upon such commitment when any two physicians of at least five years practice shall certify to his insanity, it shall be the duty of the county commissioners, with the approval of the court of quarter sessions of the county, or one of the judges thereof within fifteen days after such examination, certification and approval, at the expense of the county, to remove such indigent insane person to the proper hospital for the insane, there to be maintained at the expense of such county as indigent insane persons are now kept and supported, until the proper legal settlement of such indigent insane person can be ascertained and determined.

Primary Myoma of the Heart.—In the *Centralblatt f. Allg. Pathologie und Pathologische Anat.* for January 18, Dr. Gusti, of Hamburg, described an instance of this rare form of neoplasm occurring in a man, 34 years of age, who died with the clinical symptoms of dilatation of the heart due apparently to a muscular insufficiency because changes in the valves were not demonstrable by physical examination. The post-mortem examination showed two large nodular tumors in the wall of the left auricle, one as large as an apple, the other the size of a walnut, composed of long, narrow spindle-shaped cells, with rod-like nuclei arranged in parallel or interlacing bundles without any intercellular substance. The tumors sprang from the auricular walls and there were no tumors in any other parts of the body. The clinical symptoms are explained as due to the encroachment on the size of the cavity of the auricle. The impossibility to make a clinical diagnosis in cases of heart tumors has often been remarked and in this case another illustration of this fact is brought forward.

Dying Declarations Evidence of Abortion in Pennsylvania.—A law was passed in Pennsylvania in 1895 to the effect that the ante-mortem statements of any woman, who shall die in consequence of any criminal acts producing or intended to produce a miscarriage of such woman, as to the causes of her injuries, shall be competent evidence on the trial of any person charged with the commission of such injuries, with like effect and under like limitations as apply to dying declarations in prosecutions for felonious homicide; provided, however, that before such statement shall be submitted to the jury as evidence the commonwealth shall, by competent and satisfactory evidence, prove that such woman was of sound mind at the time such ante-mortem statements were made; and provided further, that no conviction shall be had upon the uncorroborated declarations of such woman.

Cultures of Pneumococci in Defibrinated Blood.—Experiments were made with liquid defibrinated blood and also with dried. In the former the pneumococci retained their vitality, their continuous growth and their virulence to a remarkable extent. The color of the blood changed, first resembling dregs of urine and then the color of prune juice. In solidified defibrinated blood, the pneumococci did not grow on the surface, but penetrated into the substance, where they flourished luxuriantly. They retained their vitality and virulence for a long while, but with less intensity than in the liquid form. The blood changed in color also, turning first green and then chamois yellow. An important fact noted is that all other organisms except the streptococci vegetate on the surface in solidified defibrinated blood, and do no not alter the color. The above report was read at the meeting of the Paris Société de Biologie, January 11, and the opinion was universal that in this material we have a valuable culture medium for the differentiation of the pneumococcus.—*Gaz. Méd. de Paris*, January 25.

Prolific Canadian Half-Breed Family.—A letter to the Philadelphia *Telegraph*, from northern Vermont, refers to a Canadian half-breed with a remarkable family record. His name is Macomber, and he is the son of a French Canadian; he visits northern New York and Vermont selling snowshoes, baskets and moccasins. "The tribe to which he belongs has a reservation twelve miles square. The tribe is descended from the Five Nations. The reservation is known as Caughnawaga. Macomber's grandfather died last week, aged 103, leaving considerable wealth. He had married three times, the first two wives being dead. His first wife bore him six children, the second fifteen and the third the same number. His grandchildren, great-grandchildren, and great-great-grandchildren number over 1,000. Of thirty-six children twenty-eight are living, as are most of the grandchildren, great-grandchildren and the great-great-grandchildren. The tribe claims a portion of Vermont known as the Missisquois Valley. Chiefs and great men of the Five Nations have appeared before every session of the Legislature for half a century demanding remuneration."

The Congress of American Physicians and Surgeons.—A meeting of the Executive Committee of the Congress of American Physicians and Surgeons was held in New York, Nov. 23, 1895. At this meeting the following officers were elected: President of the Congress, Dr. Wm. H. Welch, of Baltimore; Secretary of the Congress Dr. Wm. C. Carmalt, of New Haven; Treasurer of the Congress, Dr. Newton M. Shaffer, of New York; Chairman of the Executive Committee, Dr. Landon Carter Gray, of New York; Secretary of the Executive Committee, Dr. Wm. K. Simpson, of New York. The next meeting of the Congress will be held in Washington in May, 1897.

It will be observed that the officers elected are all able and worthy members of the medical profession, but they are all confined to Baltimore, New Haven and New York, while "the sunny south," "the great northwest," and "the land of the setting sun," saying nothing of the Mississippi Valley, have received no recognition. In fact, the number of square miles included in these appointments, and even the place of meeting would hardly be lost if it should happen to fall out of any of the great western States, and yet this congress has the audacity to call itself the American Congress of Physicians and Surgeons, while in reality it is a congress of a selected few, who have elected all their officers from members who live on the borders of the Atlantic between New Haven and Baltimore. Why not give it its right name? Why ignore the west, the south, the central States, and "the great northwest," and yet call it the Congress of American Physicians and Surgeons, when the facts are that the great masses of the surgeons and the physicians of America who should be members of this congress have been simply ignored? Much better call it by its right name and christen it the Eastern Congress of Physicians and Surgeons.—*Columbus Medical Journal.*

The Medical Journal is the True Post-Graduate Instructor.—The *Archives of Pediatrics* for February contains the following remarks regarding modern medical journalism. They are a part of an unsigned editorial that is, as we believe, from the incisive pen of Dr. Floyd M. Crandall, and they are a part of a series of editorials on the building up of a complete professional character. He says: "Three avenues are open to the physician by which he may keep abreast of the times—books, medical journals and post-graduate schools. The last of these are accessible to but few, and present instruction adapted only to certain cases. The last editions of standard medical books are indispensable to the true student. In the text-book and monograph he finds the various subjects of medical interest reviewed systematically and discussed in all their details. In the medical journal, however, he finds the record of medical progress as he can find it in no other place. The journal with its various departments admits of all classes of medical literature, and contains many practical and important articles which would not be adapted to the more pretentious and dignified bound volume. The well-arranged journal covers the whole field of medical writing, from the scientific original article to the clinical report, which not infrequently furnishes a key to some puzzling case. Such assistance in a single case often proves of a value not to be estimated in dollars and cents. Nearly all the best papers that appear in medical journals are first read in societies. The discussions which they elicit are frequently of even more practical value than the papers themselves. Society reports are justly regarded, therefore, as of very great value to the practitioner. A department of book reviews when conscientiously conducted is also a factor of value to the medical man. The average doctor is limited in the number of books he is able to purchase. A discriminating review, which does not fear to criticise, but does not criticise for the mere sake of criticising, enables him to judge both of the scope of a book and its probable value to him. He is thus able to place in his library those books from which he will derive the most good in his own particular class of practice."

Surgeon-General Sternberg's Defense of the Pasteurian Treatment of Hydrophobia.—According to *Science*, February 7, at a joint meeting of the scientific societies of Washington, held Jan. 14, 1896, a series of memorial addresses was presented, and of these a triad was devoted to men whose names are immortal in the annals of physiologic medicine. Those three are Pasteur for France, Helmholtz for Germany, and Huxley for England. The address regarding Pasteur is by Dr. George M. Sternberg, and presents with characteristic thoroughness the biologic value of the French scientist's work. The following is the view taken by Dr. Sternberg, of the remedial value of the Pasteurian treatment of hydrophobia:

"There has been and is still a considerable amount of scepticism among members of the medical profession, and others, as to the practical value of Pasteur's inoculations for the preven-

tion of hyrophobia; and some physicians have even contended that the disease known by this name is not the result of infection from the bite of a rabid animal, but is a nervous affection due to fear. The time at my disposal will not permit me to present for your consideration the experimental and clinical evidence upon which I base the assertion that nothing in the domain of science is more thoroughly demonstrated than the fact that there is a specific infectious disease known to us as rabies, or hydrophobia, which may be communicated to man, or from one animal to another, by the bite of a rabid animal; and that Pasteur's inoculations prevent the development of the disease in animals which have been infected by the bite of a rabid animal or by inoculations with infectious material from the central nervous system. This being the case, it is evident that there is a scientific basis for Pasteur's method of prophylaxis as applied to man, and his published statistics give ample evidence of the success of the method as carried out at the Pasteur Institute in Paris and elsewhere. Great as have been the practical results which have already followed Pasteur's brilliant discoveries, there is reason to believe that in the future still more will be accomplished, especially in combatting the infectious diseases of man. Having pointed out the way, a multitude of earnest investigators in various parts of the world are now engaged in laboratory researches relating to the cause, prevention and cure of infectious diseases. Already, in the treatment of diphtheria and of tetanus with blood serum obtained from immune animals, results have been obtained of the highest importance, and it seems probable that in the near future other infectious diseases will be cured by a specific treatment based upon scientific information obtained by those who have been following in the pathway marked out by Pasteur, the illustrious pioneer in this line of research."

Practical Notes.

Cortex Monesiæ as an Expectorant.—Rosanow, of Moscow, recommends this drug as an efficient cough medicine in cases where ipecac. and other remedies produce stomach irregularities. He prescribes it in the following formula:

℞	Ext. aquos. cort. monesiæ	c.c.	2 to 4
	Aq. destill.	c.c.	150
	Syr. simpl.	c.c.	30

Misce. A tablespoonful every two hours.—*Therapeutische Wochenschrift*, January 12.

Scopolamin as a Hypnotic for the Insane.—Experiments have been made in Russia with the bromohydrate of scopolamin, which show that it is an efficient hypnotic for the insane. Administered hypodermically in doses varying from one-fifth to one mgr. it produces sleep from three to six hours, and the calming effect lasted after waking. The chronic insane, maniacs and victims of hallucinations were benefited, but it had no effect upon delirium tremens, except to weaken the patient.—*Semaine Médicale*, January 8.

Action of Strychnin in Alcoholism.—Kroutowski describes in *Wratch*, October, 1895, the action of strychnin on fifty victims of alcohol, presenting various pathologic manifestations. He does not consider its effects durable, and believes it is only beneficial during an acute alcoholic attack, or possibly in forestalling it. But it is not, as some have asserted, a specific for alcoholism: patients apparently cured with it relapse into their old habits at the first opportunity that offers.—*Nouveaux Remèdes*, January 24.

To Remove Disagreeable Taste of Cod-Liver Oil.—Add to 100 grams of oil (Duquesnil's preferred) 1 gram essence of eucalyptus. Pavesi's process is to take 400 grams oil, 28 grams roasted and ground coffee, and 10 grams pulverized animal black. Heat this combination to 60 degrees C. in a water bath for fifteen minutes, in a tightly closed receptacle. Let it stand two or three days, shaking it up occasionally, and then filter. This results in a limpid, amber oil with the perfume and taste of coffee.—*Gaz. Médicale de Liége*, January 30.

A New Laryngeal Dilator for Chronic Stenosis.—Pfeffermann and Bors exhibited a new appliance for this purpose at the last meeting of the Royal Imperial Medical Association of Vienna, which can be introduced without the least pain or inconvenience in the form of a very slender tube. Once in place it can be dilated to the required size with gentle equable pressure on the sides of the organ. Prof. Weinlechner has used it in hospital treatment with fine results, curing permanently many cases of chronic constriction of the larynx produced by diphtheria, etc., and afforded relief in all.—*Wiener klin. Rundschau*, January 26.

Cinchonidin in Malaria.—The *Therapeutische Wochenschrift* of January 12 gives the following formula for internal use:

℞	Cinchonidin sulph	1·00
	Acid. tartar.	0·75
	Mixt. gummos.	120·00

Misce. Take in the course of the day.

For subcutaneous injections the formula is:

℞	Cinchonidin sulph.	1·00
	Acid tartar	0·80
	Aq. distill.	3·00

Misce. Each c.c. of this solution contains 0.25 of cinchonidin. A daily dose of 1 gram cinchonidin by the mouth is usually sufficient, but 1.20 or 1.50 can be taken without detriment.

Extra-uterine Pregnancy with Rupture of Sac.—At the December meeting of the St. Petersburg Med. Society, Rymsche described six cases of this kind in which laparotomy was imperative on account of the excessive anemia and scarcely perceptible pulse, owing to the blood flowing into the abdominal cavity. Judging from these and similar cases, he has noted that the abdomen should be opened at once. Even when the hemorrhage stops spontaneously, it is impossible for this mass of blood to be reabsorbed. The Surgical Society of Paris also devoted their last meeting to this subject, and the majority advocated laparotomy in all cases except where an opening through the posterior wall of the vagina is indicated.—*Revue Internat. de M. et de C.*, January 25, and *Progrès Méd.*, January 25.

The Chaput and Murphy Button Compared.—Chaput claims the following advantages for his invention already mentioned in this JOURNAL: 1. The technique is more rapid, since only one suture is required instead of two. 2. My largest button has a smaller circumference than Murphy's smallest, with a larger opening than Murphy's largest. 3. My button does not sphacelate the intestine like Murphy's, and is thus less dangerous. 4. My button can always be inserted in good order, no matter how thick the walls of the stomach or intestine may be, which we know is not the case with the Murphy. 5. While Murphy's button can not be detached, a sound will easily detach mine. 6. My button is very simple, with no delicate nor complicated mechanism, and yet imitations of it can not be made so readily as of the Murphy button.—*Gaz. Méd. de Liége*, January 30.

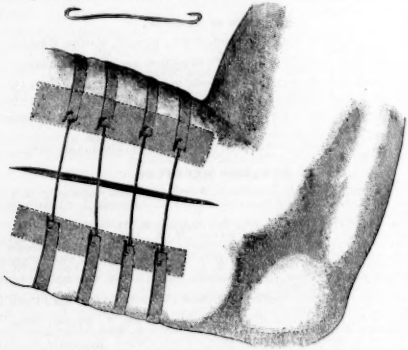
Castration for Hypertrophy of the Prostate.—The address delivered by Prof. Englisch on this subject and reported elsewhere in this JOURNAL was accompanied by a practical illustration of the effects of this operation. A patient appeared in Prof. Albert's clinic suffering from complete retention of the urine, with the prostate distinctly palpable, complicated with epididymitis and other troubles which indicated castration as the only means of relief. The operation seemed to be a failure at first, as no relief was obtained from it until the fifth week. At that time the urine began to be discharged spontaneously and gradually the prostate decreased in size, resulting in a perfectly successful case, important on account of the way in which the castration produced the desired result in accordance with the latest theories in regard to its modus operandi.—*Wiener klin. Rundschau*, January 26.

Electrolysis in the Treatment of the Nasal Canal.—The *Province Médicale* of January 25, brings us a careful study of this subject, based on the personal experiences of the writer, who states that the failure of this method with other organs, has blinded us to its remarkable advantages in the treatment of the nasal canal, far surpassing those obtained with catheters and injections. It is of the greatest benefit in treating the lachrymal

ducts, much simpler and easier than Bowman's method. One treatment is as effective as a course with the catheter, and the only drawback is the possibility of cicatricial formations, which is still an undecided question.

Antipyrin as an Anesthetic for the Bladder.—Antipyrin is as prompt and certain as cocain for this purpose, and its use is absolutely free from danger. Pousson writes to the *Journal de Méd. de Bordeaux* that he uses a 2 per cent. solution, although it might be as strong as 4 per cent. without danger. After having injected 50 to 60 grams of this solution, then allowing an interval of five minutes, and injecting again the same quantity, the patient evacuates it alone or with the assistance of a catheter, and the bladder is ready for the introduction of an instrument. He sometimes makes a third injection in order to prolong the anesthesia. If the bladder is sensitive a smaller quantity of a 4 per cent. solution is preferable.

Hooks instead of Sewing for Support of Wound Edges.—Sewing a wound is not always practicable for various reasons, and in such cases the platinum wire hooks and strips of plaster shown in the cut, prove an efficient method. A strip of gauze or rubber should be laid along the plaster edge on the side toward the wound, so that none of the glue can pass into the wound. The plaster should be double, and encircle the entire limb if



possible, leaving a broad space for the wound, to secure asepsis. The wire should be sterilized and bent to fit the limb.—*Centralbl., für Chir.*, January 18.

It will readily occur to most surgeons, that this device, as a support, will prove a valuable resource in cases where early removal of stitches is desirable, and yet there is danger of gaping, and perhaps reopening or infection of the wound.

Oxygenated Water in Hemostasis.—Petit addressed the *Soc. Obst. et Gyn.*, December 12, on the use of oxygenated water in hemostasis. It possesses the three-fold property of promoting the precipitation of fibrin, of stimulating inert fibers, with very little, if any, injury to the tissues. In treating an intra-uterine hemorrhage caused by a fungous metritis or fibroma, if a cotton wad dipped in oxygenated water is introduced suddenly into the organ, froth pours out of the orifice, the organ contracts at once and the hemorrhage is immediately arrested. There is no pain, and no injury to the tissues, while the hemostasis produced persists long enough for an anemic patient to recover strength sufficient to support a more radical intervention if necessary.—*Rev. Internat. de M. et de C.*, January 25.

Fixation of the Liver in Hepatoptosis.—There are so few cases of this kind on record that we quote the following from the publication of the Moscow Société de Chir.; October, 1895: A woman of 50 was injured in an accident and her liver displaced. Jaundice, severe pains, impossibility to sit down, distress in walking and inability to sleep on the left side indicated wandering liver and immediate treatment of some kind. Hepatopexis offered the only means of relief. The organ was found perfectly sound and was fastened with two strong silk threads. The first passed entirely through the liver and back again, with the same needle 4 c. distant, and the thread was firmly fastened in the cartilage of the ninth rib. The second thread also passed entirely through the liver at right angles to the first and the two ends were fastened just above the ninth rib. The surface of the liver was then scratched lightly with the point of the needle to ensure secondary adherence to the diaphragm. At first the rib was dragged down, but this soon righted itself, all pains ceased, and a year later the liver was in the same position and none of the old symptoms had shown themselves except an occasional icteric eruption.—*Prov. Méd.*, January 25.

Detroit Notes.

In his paper upon "The Effect of Heart Strain on the Tricuspid Valves," read before the Detroit Medical and Library Association Monday, January 13, Dr. W. R. Chittick brought forward the importance of the subject, at the same time referring to the fact that the text-books have very little to say upon the subject. Much has been written and said upon lesions of the valves of the left side of the heart, but little about those upon the right side of the heart, although the latter are of almost equal importance with the former, though much rarer. In many cases tricuspid follow mitral lesions. If the venous circulation is interfered with by disease, we usually have the right heart correspondingly affected. The doctor went on further to explain what he meant by heart strain, not confining himself to the strain which the heart suffers in excessive athletic exercises, but including also strain occurring in pathologic conditions. In soldiers on forced marches and hunters following their hard mode of life, incompetency of the tricuspid valve may suddenly develop. From such cases we have gained most of our knowledge of these lesions. The doctor then cites several such cases in which he shows how prolonged and excessive work is immediately followed by the suddenly developed tricuspid lesion. Excessive stimulation, as in drinkers, may also be an etiologic factor. This lesion is often followed by mitral incompetency, and the former may not be recognized until the latter begins to develop. In pulmonary congestion, due to any disease or pathologic condition of the body, blood may be backed up into the right ventricle, and the tricuspid valves becoming incompetent, be further backed up into the liver. The thinness of the walls of the right ventricle allowing of distension may sometimes save the valves upon that side, and this may account for the lesser frequency. Though great stress has been laid upon venous pulsation in the neck in tricuspid insufficiency, the writer had found this absent in several cases which he had seen. Another diagnostic point he had not always found present, namely, hepatic systolic pulse. The venous engorgement in some cases may further affect the structure of the kidneys, producing uræmic symptoms. The paper was discussed by Drs. W. McDonald, E. S. Shirrell, Chas. Douglas and J. Flinterman.

The Wayne County Medical Society at its regular meeting Thursday, February 13, listened to an interesting paper by Dr. Edward W. Jenks, entitled "One of the Lost Arts of Gynecology."

Health Office Report, for week ending Feb. 15, 1896: Deaths 93, under 5 years 33; births, male 52, female 40, total 92. Contagious diseases: Diphtheria, last report 7, new cases 6, recovered 4, died none, now sick 9. Scarlet Fever: Last report 20, new cases 4, recovered 11, died one, now sick 12. Smallpox: Last report 2, new cases 4, recovered none, died one, now sick 5.

Washington Notes.

To Test the Contagious Disease Law.—A warrant has been issued for the arrest of a Washington physician on the charge of violating the contagious disease law. It is alleged he failed to make a proper report of a case of diphtheria.

A NEW FREE DISPENSARY.—Articles incorporating the South Washington Free Dispensary have been filed with the Recorder of Deeds by Drs. James T. Morgan, D. K. Shute, George Barrie and Henry A. Robbins. The dispensary will be put in operation at once. Dr. Morgan will have charge of the department of diseases of throat, chest, and general medicine; Dr. Chas. L. Allen, nervous diseases; Dr. Barrie, surgery; Dr. Robbins, skin and venereal diseases; Dr. H. D. Fry, diseases of women, and Dr. D. K. Shute, diseases of the eye.

COMMITTEE ON PUBLIC HEALTH.—The committee of the Board of Trade on public health held an important meeting on the 15th instant and have arranged a report for presentation to a public meeting of the Board to be held during the coming week. Sewer extension, water supply and filtration, and prevention of typhoid fever will be fully discussed.

THE POST-GRADUATE SCHOOL OF MEDICINE OF THE DISTRICT.—The act of Congress incorporating the Post-graduate School of Medicine of the District of Columbia, which passed both Houses, was signed by the President on the 7th instant and has consequently become a part of the revised statutes. The school is allowed to hold real and personal property to the amount of $200,000. The course of teaching has been arranged and the school will be in operation shortly.

A MEDICAL LAW TO BE REPEALED.—The Senate Committee on Military Affairs favorably reported the bill repealing the existing law which requires surgeons and other medical officers of military homes to be persons who have been disabled in the military service of the United States.

A SYSTEMATIC TRADE IN CADAVERS ACCIDENTALLY DISCOVERED.—The police are investigating a case of grave robbery. The first known of it was when a report came to headquarters that a box containing two corpses had been left at the Baltimore & Ohio station last week by three colored men, who put it on the freight platform. One of the men said the box was to be sent through, expressage to be collected at the other end. Later, when the men at the station took up the box they found that there were two addresses upon it. One was "Angus McLane, 223 Pelham Street, Detroit, Mich." In another place was the address of a Baltimore firm. It is supposed one of these was inadvertently left on, but the trainmen were in doubt as to the proper destination of the parcel. To get some clue of the destination the lid was forced off. The men, who supposed that the contents were merchandise, were surprised to discover the bodies of two colored women.

PHYSICIANS ON THE WITNESS STAND.—Senate bill 981, relating to the testimony of physicians in the courts of the District of Columbia, was the subject of a report to Congress by the Commissioners. They inclose two reports upon the bill, one from the justices of the supreme court of the District, and the other from the president of the Medical Society of the District. The bill proposes to exempt and prohibit physicians from disclosure in the courts of information obtained in attending a patient in a professional capacity. The judges report against the measure. They say: "The enactment sought by the bill would be a serious obstruction to justice in contests over life insurance, personal injury from negligent or willful act, wills and others in which mental capacity is involved. In such cases facts coming under the observation of the attending physician are generally of first importance, and in cases involving questions of mental capacity the opinion of the physician, based in whole or in part upon communication made to him by the patient, is frequently the most important evidence adduced. These objections are not obviated by placing such evidence within the power of 'the person afflicted, or of his legal representative,' to permit or deny. It is not to be anticipated that such person will ever consent to the examination of a physician whose testimony is expected to be adverse to him, and the other party to the litigation, and the court as well, perhaps with the full knowledge of the situation, would be powerless in such instances to require the truth to be shown." The report of Dr. Busey, President of the Medical Society, says the bill was drafted by direction of the Medical Society. It is, he says, modeled on the law of the State of New York, and is substantially the same as similar laws in force in twenty States and one Territory of this country, the first of which was enacted by the State of Oregon in 1872, and the latest in 1887 by the States of Indiana, Wyoming, Montana and Idaho. The report argues at considerable length against the position taken by the judges.

MICROSCOPICAL SOCIETY.—At the regular meeting of the society held on the 11th inst., Hon. A. A. Adee presented the subject of photomicrography.

MEDICAL SOCIETY.—At the meeting of the society held on the 12th inst., Dr. S. O. Richey read a paper entitled "Fads and Fashions in Surgery."

THE BILL TO REGULATE the practice of medicine and surgery in the District of Columbia passed the House February 11.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from February 8, 1896, to February 14, 1896.

First Lieut. William W. Quinton, Asst. Surgeon, will be relieved from duty at Ft. Riley, Kan., and ordered to Ft. Logan, Colo., for temporary duty.

Capt. C. S. Berkeley Macauley, Asst. Surgeon, died Feb. 6, 1896, at Ft. Logan, Colo.

Major Joseph B. Girard, Surgeon, will be relieved from duty at the Presidio of San Francisco, Cal., and ordered to Jefferson Bks., Mo., for duty at that post, relieving Major Robert H. White, Surgeon. Major White, upon being relieved, will proceed to Presidio of San Francisco, Cal., for station.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending February 15, 1896.

Surgeon J. M. Steele, detached from the "Independence" and ordered to the "Monadnock."

Change of Address.

Cobb, J. O., from Port Townsend, Wash., to U. S. Marine Hospital, Cincinnati, Ohio.
Davis, W. M., from Chicago, Ill., to Blackfoot, Anderson Co., Texas.
Ferguson, Clara, from Tipton, Iowa, to Dunning, Ill.
Hubbard, Thomas, from 205 Ontario St. to 145 22d St., Toledo, Ohio.
Kelly, E. E., from 1247 Market St. to 803 Sutter St., San Francisco, Cal.
Martin, C. M., from Belding, Mich., to Bellevue, King Co., Wash.
Regensburger, M., from 114 Geary St. to 803 Sutter St., San Francisco, Cal.
Russell, E. David, from Cedar Bluffs to Iowa City, Iowa.
Taylor, W. H., from 329 W. 7th St. to 553 W. 7th St., Cincinnati, Ohio.

LETTERS RECEIVED.

American Publishing Association, Montreal, Canada; Alonso, F. M. Y., Las Vegas, N. M.; Avery, S. J., Chicago, Ill.; Aydelott, J. F., Decatur, Tenn.

Barclay, W. F., Pittsburg, Pa.; Bowen, Chas. H. (2), Washington, D. C.; Benjamin, D., Camden, N. J.; Bowles, M. K., Joliet, Ill.; Boehringer, C. P., & Soehne, New York, N. Y.; Brooks, H. A., Salem, Mass.; Brown, F. F., Advertising Agency, New York, N. Y.; Black, C. G., Chicago, Ill.

Clendenin, W. G., Haw River, N. C.; Connorton, J. W., Chicago, Ill.; Collins, R. G., Chicago, Ill.; Chancellor, E., St. Louis, Mo.; Cullen, Gilbert L., Cincinnati, Ohio

Dombrowski, Paul, Peoria, Ill.; Drew, C., Jacksonville, Fla.; Davis, Geo. S., Detroit, Mich.

Edwards, F. L., Cuba City, Wis.; Eames, Geo. F., Boston, Mass.; Eckelman, Metius M., Elkhart, Ind.; Eysler, G. L., Rock Island, Ill.

Farley & Metcalf, Dayton, Ohio; Fehr, Julius, Hoboken, N. J.; Farnsworth, F. J., Clinton, Iowa; Fassett, Charles Wood, St. Joseph, Mo.; Fellows, C. D., Valley Junction, Iowa.

Goss, F. W., Roxbury, Mass.; Goodwin, R. S., Thomaston, Conn.; Gibon, Edward L., New York, N. Y.

Hummel, A. L., Advertising Agency (2), New York, N. Y.; Hersey, Geo. D. (2), Providence, R. I.; Hancker, Wm. H., Farnhurst, Del.; Howard-Anderied, Ads, Philadelphia, Pa.; Harsha, Wm. M., Chicago, Ill.; Hallenbeck, Carl S. N., Chicago, Ill.; Herdman, W. J., Ann Arbor, Mich.; Horner, Frederick, Marshall, Va.; Hayes, J. Chicago, Ill.; Horsfall, Wm., Marshfield, Ore.

Irwin, W. E., Owensboro, Ky.; Ingals, E. Fletcher, Chicago, Ill.

Johnston, W. H. (2), Birmingham, Ala.; Johnston, George Ben, Richmond, Va.

Katharmon Chem. Co. (2), St. Louis, Mo.; Kelly, E. E., San Francisco, Cal.; Kiefer, H., Detroit, Mich.

Lluger, O. E., Starbuck, Minn.; Longmans, Green & Co., New York, N. Y.; Lehn & Fink, New York, N. Y.

MacCoy, Geo. T., Columbus, Ind.; McCormac, J. F., Marshfield, Ore.; Martin, W. A., San Francisco, Cal.; Martin, H. M., Chicago, Ill.; Matteson, J. H., Buffalo, N. Y.; Maltine Mnfg. Co., New York, N. Y.; Mitchell, Louis J., Chicago, Ill.; Myers, A. A., Waterloo, Iowa.

North, L. G., Tecumseh, Mich.; Nostraud, D., Van Co., New York, N. Y.; Nowlin, H. E. Washington, D. C.

Parkinson, Jas. H., Sacramento, Cal.; Pantagraph Ptg. and Stationery Co., Bloomington, Ill.; Payne, Geo. F., Atlanta, Ga.; Penrose, C. B., Philadelphia, Pa.

Randall, Ferdinand, New York, N. Y.; Richardson, A. B., Columbus, Ohio; Robinson, A. R., New York, N. Y.; Rogers, John H., Springfield, Ohio; Roy, Dunbar, Atlanta, Ga.

Stearns, T. & Co., Detroit, Mich.; Smith, Chas. D., Portland, Me.; Sternberg, Geo. M., Washington, D. C.; Stone, C. & Sons, Chicago, Ill.; Short, O. J., (2), Hot Springs, Ark.; Schenck, W. Edwards, Cincinnati, Ohio; Siefert, C. F., New York, N. Y.; Seibert, W. H., Steelton, Pa.; Small, Edward H., Pittsburg, Pa.; Stokes, W. B., Coldwater, Ky.; Strichter, F. G., Louisiana, Mo.; Sheldon, Charles S., Madison, Wis.; Stevenson, Chas., Philadelphia, Pa.; Stone, R. French, Indianapolis, Ind.

Taylor, C. M., Columbus, Ohio; Tomlinson, P. W. (2), Wilmington, Del.; Tuttle, Albert H. Boston, Mass.

Van Wyck, Mrs. R. C., Hopewell Junction, N. Y.; Vinsonhaler, F., Little Rock, Ark.

Watkins, W. W., Moscow, Idaho; Watson, Irving A., Concord, N. H.; Wall, G. W., Topeka, Kan.; Werner, O. E., Louisville, Ky.